

FIFTY-SEVENTH
ANNUAL REPORT

OF THE

FISHERIES BRANCH

Department of Marine and Fisheries

FOR THE YEAR

1923-24

PRINTED BY ORDER OF PARLIAMENT



OTTAWA
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PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1924

DEPUTY MINISTER'S REPORT

To the Hon. P. J. A. Cardin,

Minister of Marine and Fisheries.

I have the honour to submit the fifty-seventh annual report of the Fisheries Branch of the Department of Marine and Fisheries.

Page

Deputy Minister's Report covering the period from the 1st of January to the 31st of December, 1924.

Review of the Fisheries of 1923.

To General His Excellency the Right Honourable Lord Byng of Vimy, G.C.B., G.C.M.G., M.V.O., Governor General and Commander in Chief of the Dominion of Canada.

MAY IT PLEASE YOUR EXCELLENCY:

I have the honour to submit herewith, for the information of Your Excellency and the Parliament of Canada, the fifty-seventh annual report of the Fisheries Branch of the Department of Marine and Fisheries.

I have the honour to be,

Your Excellency's most obedient servant,

P. J. A. CARDIN,

Minister of Marine and Fisheries.

DEPARTMENT OF MARINE AND FISHERIES,
OTTAWA, AUGUST, 1924.

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DEPUTY MINISTER'S REPORT

To the Hon. P. J. A. CARDIN,

Minister of Marine and Fisheries.

SIR,—I have the honour to submit the Fifty-seventh Annual Report of the Fisheries Branch of the Department, which is for the fiscal year ended March 31, 1924.

The report deals with the following subjects:—

Review of the Fisheries of 1923.

Operation of the Fish Inspection Act.

Operation of the Meat and Canned Foods Act.

Fisheries Intelligence Service.

Fish Publicity Campaign.

Fishing Bounty.

Fish Culture.

Work of the Biological Stations.

Educational Effort.

Natural History Observations.

Appendices to the report include the following:—

Reports of Inspectors of Fisheries.

Fisheries Expenditure and Revenue.

Fishways and Removal of Obstructions.

Work of C.G.S. *Arleux* and *Arras*.

Summary of Licenses issued.

Entries of United States Fishing Vessels.

REVIEW OF THE FISHERIES OF 1923

The catch of fish on both the Atlantic and Pacific coasts during the year was slightly less than in the previous year, while the production for Ontario and the West is slightly higher. The total marketed value of the fisheries of Canada for the year was about three quarters of a million dollars greater than in 1922.

The following table shows the marketed value of the fisheries, by provinces, compared with that of the preceding year:—

	1923	1922
Nova Scotia.....	\$ 8,448,385	\$ 10,209,258
New Brunswick.....	4,548,535	4,685,660
Prince Edward Island.....	1,754,980	1,612,599
Quebec.....	2,100,412	2,089,414
Ontario.....	3,159,427	2,858,122
Manitoba.....	1,020,595	908,816
Saskatchewan.....	286,643	245,337
Alberta.....	438,737	331,239
British Columbia.....	20,795,914	18,849,658
Yukon Territory.....	11,917	10,107
	<hr/>	<hr/>
	\$ 42,565,545	\$ 41,800,210

ATLANTIC FISHERIES

Cod, Haddock, Hake and Pollock.—There were 2,242,000 cwts. of these fish landed during the year compared with 3,045,000 cwts. in the preceding year. A decrease in the catch of cod accounts chiefly for the difference. There were 1,773,000 cwts. of cod landed, which is 547,000 cwts. less than in the year previous. There was a curtailment in the Lunenburg fishing fleet, only eighty vessels operating, which is the smallest number for twenty years and nineteen less than in 1922. The catch of haddock was about the same as in the previous year. Only 93,000 cwts. of hake and 71,000 cwts. of pollock were landed. These are decreases of 169,000 cwts. and 83,000 cwts. respectively from the landings of the year before.

Mackerel, Herring and Sardines.—There was a decrease of these fish of 410,000 cwts. in the catch, only 1,102,000 cwts. being taken. The quantity of herring taken was 691,000 cwts., which was 80,000 cwts. less than the year before. Pickled herring reached a very low value, selling for \$4 per barrel. The smoked herring business at Grand Manan was a failure owing to few herring suitable for smoking being taken at the weirs. It would seem that while herring of a suitable size for smoking were plentiful outside in the waters of the bay they were not driven into the weirs by their natural enemies, as is usually the case.

The mackerel catch decreased from 251,000 cwts. in 1922 to 142,000 cwts. The spring run of these fish was small and prices were low, the latter being due to the fact that there was a heavy run off the New England shore and a number of dealers had large stocks in cold storage from the 1922 run, for which a high price had been paid. Conditions, however, improved somewhat towards the end of the year.

The sardine catch shows a decrease. There were 135,000 barrels taken compared with 245,000 barrels in 1922. Owing to the scarcity of these fish the price increased considerably and the sardine fishermen were much better off than for some seasons.

Other Sea Fish.—The quantity of halibut decreased by 11,000 cwts., only 20,000 cwts. being taken. Swordfish were landed in larger numbers, the catch being 14,000 cwts. Albacore and flounders show increased catches, but there was a decrease in the catch of tomcod.

Shellfish.—The lobster season opened under very bad conditions, the drift ice around the coast being such as to prevent the setting of traps at the commencement of the season. Fishing conditions improved, however, later on, with the result that each of the provinces show an increased catch except Nova Scotia, the decrease in the latter province being only 900 cwts.

The total catch was 382,000 cwts., as compared with 364,000 cwts. in 1922. The catch by provinces was:—

Nova Scotia.....	173,000 cwts.
New Brunswick.....	74,000 "
Prince Edward Island.....	97,000 "
Quebec.....	38,000 "

Prince Edward Island shows the largest increase, of about 10,000 cwts.

As the season advanced the market for the canned article became poor, with the result that the live lobster industry received considerable impetus, especially in New Brunswick and Prince Edward Island. On account of the success attained by the shippers of live lobsters during the 1923 season it is thought that a larger proportion of the catch will be shipped alive from these districts in future.

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The catch of oysters was about 4,000 barrels greater in 1923, 21,000 barrels being taken.

Clams and scallops were taken in about the same quantities as in the preceding year.

River Spawning Fish.—The catch of salmon was 46,000 cwts., or an increase over the preceding year of 9,000 cwts.

The quantity of smelts taken decreased by 19,000 cwts., only 63,000 cwts. being caught. This was due to the open season during the early part of the winter, when the ice did not form and it was impossible to set nets. New Brunswick was the chief loser in this fishery, the other provinces producing practically the same quantity as in the previous year. On account of the scarcity of these fish the price received by the fishermen was the highest for some time, with the result that the marketed value was somewhat greater than in the preceding year.

The quantity of alewives taken was slightly greater than in the preceding year, the decrease in the Nova Scotia catch being more than made up by the increased catch in the St. John, N.B., district.

INLAND FISHERIES

There was an increase in the production of the inland fisheries, with the exception of whitefish and tullibee in the province of Manitoba. While the catch of whitefish decreased in lake Winnipeg, there was an increase in Ontario, Saskatchewan, and Alberta, which brings the catch up to the same as the previous year. The decrease in the catch of this species in lake Winnipeg is attributed by some to the fact that the fish did not school and kept scattered, making it hard for the fishermen to locate them.

An increase of about 19,000 cwts. is noted in the catch of pickerel.

There was a decrease in the catch of blue pickerel in Ontario, only 32,000 cwts. being landed compared with 63,000 cwts. in 1922.

An increase in the catch of herring in Ontario is shown, 108,000 cwts. being taken, or an increase of 33,000 cwts.

In the St. John River district of New Brunswick the production of fish was slightly greater.

PACIFIC FISHERIES

Salmon.—There was a slightly increased catch of salmon during the year, 1,515,000 cwts. being taken. The pack is greater by 24,351 cases and amounts to 1,314,677 cases. The pack of sockeye salmon was 334,647 cases, an increase of 35,033; that of cohoes 112,044 cases, an increase of 9,199 cases. A decrease of 141,047 cases is noted in the pack of pinks, while 418,055 cases of chums were canned, or an increase of 159,851 cases.

Halibut.—The catch of halibut gives an increase of 41,483 cwts., there being about 335,000 cwts. landed. This constitutes a record for landings of this species in British Columbia ports.

Of the quantity landed in 1923 American vessels brought in 203,666 cwts.

Herring.—There was a slight increase in the catch of herring, 1,035,823 cwts. being taken. As usual the bulk of this catch was dry salted for the Orient, where a ready market and good prices were obtained.

Pilchards.—The catch of pilchards was about the same as in the previous year. The fish are quite plentiful on the west coast of Vancouver island at certain seasons of the year, but the demand is not sufficient to encourage the capture of them in larger quantities.

Whales and Seals.—Three whaling stations were in operation during the year at Kyuquot, Rose Harbour, and Naden Harbour. The total catch was 455 whales, which is an increase of 268 over the previous year.

There were 4,424 seals taken during the year compared with 930 in 1923.

INSPECTION OF FISH

The inspection of certain kinds of fish and the packages in which they are marketed was carried on during the season of 1923 under authority of the Fish Inspection Act. The Act makes it necessary for packers to have both fish and barrels in accordance with its requirements and empowers inspectors to examine such whenever and wherever it is necessary and convenient. The work was carried on by a staff of three permanent and twelve temporary inspectors on the Atlantic coast, and two temporary inspectors on the Pacific coast.

On the Atlantic coast sixty-six thousand barrels and nine hundred and twenty pails of pickled fish, and almost thirty thousand boxes of smoked herring, passed through the hands of the inspectors who examined them as to the quality and construction of barrels and the weight, quality, grade and curing of the fish in accordance with the requirements of the Act.

On the Pacific coast, the large and growing trade in dry-salted herring between British Columbia and the Orient was supervised by the department's inspectors.

Provided the container is of the standard size and filled to capacity with properly cured fish, a certificate to that effect is given by the inspector to the shipper of each consignment as it is inspected. This system of inspection is proving to be very satisfactory to the trade.

During the past winter herring season in British Columbia, there were inspected two hundred and forty-four thousand boxes, each containing four hundred pounds of herring. Of that total, one hundred and seventy thousand three hundred and seventy-eight boxes were packed on the west coast and seventy-three thousand six hundred and twenty-two boxes on the east coast of Vancouver island. When it is noted that at an average price, f.o.b. British Columbia, of six dollars per box the total value of this trade amounts to almost one and one-half million dollars, its importance as a branch of the fishing industry of the Pacific province is immediately apparent. In addition to that quantity of dry salted herring, there were also packed in the Scotch style thirteen hundred and forty-four barrels, nine hundred and twenty-five half-barrels and fifteen hundred and sixty-four small packages. These were all duly inspected.

The very great improvement in the strength, tightness and good quality of the barrels now being used under this system of inspection, and the very marked improvement in the quality of the fish packed, is resulting in much greater use being made of the inspectors on the part of not only fishermen but dealers and shippers.

INSPECTION OF CANNERIES AND CANNED FISH

The inspection of fish canneries of all kinds, the raw materials used therein, the whole process of canning, the canned product itself and the labelling and designating of such was carried on during the year as usual under the provisions of the Meat and Canned Foods Act. This inspection is carried on by the department's staff of Fishery Overseers as part of their ordinary duties. The inspection aims at the extension of the trade by improving the quality of the product, and the protection of the public by preventing the packing of

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unsound fish, and seeing that all cans of fish are correctly labelled. Imported canned fish also is subject to inspection under the Act, and must be in accordance with the provisions thereof as to soundness, weight and proper designation.

FISHERIES INTELLIGENCE SERVICE

Under this service there was carried on during the season of 1923:—

1. The collection of monthly statistics of the sea fisheries, and the compilation of such in a summarized form for publication through the press each month.

2. The publication of a quarterly bulletin containing the statistics in detail. The bulletin is distributed to the trade and all directly concerned. The statistics are practically all collected by the regular fishery officers while performing their other duties as such, and at very little additional cost.

3. The collecting of information concerning supplies of bait day by day along certain stretches of the coast during the spring and summer months. The information is gathered by the officers of the department, who send it by telegram daily to certain ports where it is posted up for the information of Masters of fishing vessels and those looking for bait.

FISH PUBLICITY CAMPAIGN

From October to March last, the department assisted a committee of the Canadian Fisheries Association to carry on a campaign of advertising for the purpose of increasing the consumption of fish and thereby ultimately improving the condition of the fishing industry generally. The campaign was short and the ground has really only been broken. Evidence is on hand, however, showing that sales of fish increased very markedly as a result of the publicity work, and there need be no doubt that further efforts along the lines will result beneficially to the industry by further increasing the consumption of fish.

FISHING BOUNTY

Under the authority of "An Act to encourage the development of the Sea Fisheries and the building of Fishing Vessels," the sum of \$160,000 is appropriated annually by the department and paid to fishermen of the Maritime Provinces. The bounty is distributed under regulations made from time to time by the Governor in Council.

For the year 1923, payment was made on the following basis:—

To owners of vessels entitled to receive bounty—\$1 per registered ton: payment to the owner of any one vessel not to exceed \$80.

To vessel fishermen entitled to receive bounty—\$9 each.

To owners of boats measuring not less than 13 feet keel—\$1 per boat.

To boat fisherman entitled to receive bounty—\$7.60 each.

There were 8,915 bounty claims paid. In the preceding year there were 11,204 bounty claims paid.

The total amount paid was \$159,916.80, allocated as follows:—

To 508 vessels and their crews, \$45,664.95.

To 8,407 boats and their crews, \$114,251.85.

FISHING BOUNTY EXPENDITURE FOR 1923-24

County	Boats	Men	Amount	Vessels	Tons	Av. Tons	Men	Amount	Paid
			\$ cts.					\$ cts.	
<i>Nova Scotia</i>									
Annapolis.....	148	237	1,949 20	1	60	60	19	231 00	149
Antigonish.....	148	214	1,774 40	.....	.....	.....	.....	.....	148
Cape Breton.....	217	368	3,000 30	19	282	15	56	786 00	236
Cumberland.....	2	2	17 20	1	11	11	2	29 00	3
Digby.....	326	529	4,341 90	2	24	12	7	87 00	328
Guysboro.....	520	817	6,695 45	36	545	15	144	1,841 00	556
Halifax.....	1,026	1,294	10,846 90	48	884	18	262	3,242 00	1,074
Inverness.....	283	569	4,582 65	10	143	14	44	539 00	293
Kings.....	33	47	390 20	.....	.....	.....	.....	.....	33
Lunenburg.....	579	738	6,158 55	128	7,175	56	1,733	22,772 00	707
Pictou.....	40	62	499 95	.....	.....	.....	.....	.....	40
Queens.....	113	174	1,428 65	11	137	13	39	488 00	124
Richmond.....	304	510	4,150 75	14	231	16	54	717 00	318
Shelburne.....	402	730	5,945 50	17	336	20	235	2,416 15	419
Victoria.....	267	392	3,210 20	5	89	17	22	287 00	272
Yarmouth.....	85	181	1,460 60	10	510	51	96	1,374 00	95
Total.....	4,493	6,864	56,452 40	302	10,427	34	2,713	34,809 15	4,795
<i>New Brunswick</i>									
Charlotte.....	229	409	3,314 90	4	50	12	12	158 00	233
Gloucester.....	108	248	1,990 55	184	2,631	14	827	10,065 80	292
Kent.....	11	19	155 40	6	64	11	15	199 00	17
Northumberland.....	.....	.....	.....	2	21	10	5	66 00	2
Restigouche.....	2	6	47 60	.....	.....	.....	.....	.....	2
St. John.....	12	15	126 00	.....	.....	.....	.....	.....	12
Total.....	362	697	5,634 45	196	2,766	14	859	10,488 80	558
<i>P. E. I.</i>									
Kings.....	181	251	2,050 35	3	42	14	8	114 00	184
Prince.....	416	789	6,225 65	1	12	12	2	30 00	417
Queens.....	98	209	1,679 65	2	27	13	3	54 00	100
Total.....	695	1,249	9,955 65	6	81	13	13	198 00	701
<i>Quebec</i>									
Bonaventure.....	337	588	4,466 05	3	33	11	9	114 00	340
Gaspé.....	1,976	3,819	30,307 40	1	10	10	5	55 00	1,977
Matane.....	99	135	1,100 25	.....	.....	.....	.....	.....	99
Saguenay.....	445	789	6,335 65	.....	.....	.....	.....	.....	445
Total.....	2,857	5,331	42,209 35	4	43	11	14	169 00	2,861
Grand total.....	8,407	14,141	114,251 85	508	13,317	26	3,599	45,664 95	8,915

FISH CULTURE

The fish cultural operations of the department during the calendar year, 1923, were mainly devoted to the more important fresh water and anadromous food fishes, such as Atlantic salmon in the East, whitefish, salmon trout and pickerel in the interior and the Pacific salmon in the West.

A general improvement in the roads and the more extensive use of automobiles has brought trout streams that were previously considered rather remote within reach of a vastly increased number of anglers. Consequently a much heavier toll is taken, not only in the streams that are near the centres of population, but from those at a distance which were previously beyond the reach of the majority of the residents.

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To meet this increase in trout fishing, the propagation of the species was taken up on a more extensive scale than in the past and a comparatively large portion of the best angling waters of Nova Scotia was thoroughly prospected by hatchery officers with a view to locating places where trout eggs are obtainable in reasonable numbers. The area, however, is so extensive that but a comparatively small portion of it could be covered this year, and no large and productive spawning grounds were located, but valuable information regarding certain areas was obtained, which will greatly assist in future operations. For the first time speckled trout eggs were collected in Boundary and Violin lakes, near Nelson, in southern British Columbia. The species was introduced into these waters in recent years and have done so well that nearly one million eggs were secured from them this season.

The Atlantic salmon eggs were, as is customary, obtained from fish which were purchased from the commercial catch or were caught in nets operated under contract for the purpose. Practically all the salmon trout eggs and a portion of the whitefish and pickerel eggs were obtained from the commercial catch of the gill-net fishermen, and the balance from fish captured in nets operated by hatchery officers. The eggs of Pacific salmon were obtained in the usual way from fish that were intercepted in the streams on their way to the upper spawning beds.

The collection of speckled trout eggs was the largest since 1917, and was further increased by purchase and exchange. All previous collections of whitefish were exceeded in the bay of Quinte; around Pelee islands, lake Erie; in the lake of the Woods and in lake Winnipegosis. The total collection exceeded that of last year by one hundred million. The pickerel collection was the largest on record, being one hundred and fifty-four million in excess of last year. The collection of sockeye eggs compared favourably with the best of recent years. The collection in the Fraser River watershed was the fifth highest on record and could have been increased had hatchery accommodation been available. It is significant that over eleven million eggs were obtained from fish that were captured in and around the entrance of the ditch that leads from the ponds of the Harrison Lake hatchery, from which a considerable number of fry were liberated four years ago.

The total collection of eggs was two hundred and forty-one and one-half million in excess of that of last year. This collection was augmented by the purchase of trout eggs, thus bringing the total receipt of eggs to over two hundred and forty-three million in excess of 1922. The following summary gives, by species, the total receipt of eggs during the year ended December 31, 1923:—

Atlantic salmon.....	22,383,000
Rainbow trout.....	20,500
Cutthroat trout.....	619,860
Steelhead salmon.....	43,650
Kamloops trout.....	2,240,500
Sockeye salmon.....	102,386,100
Spring salmon.....	1,073,000
Coho salmon.....	2,008,000
Pink salmon.....	4,003,900
Chum salmon.....	2,900
Speckled trout.....	2,060,820
Whitefish.....	698,860,000
(a) Salmon trout.....	39,681,500
Cisco.....	22,182,000
(b) Pickerel.....	388,180,000
	<hr/> 1,285,745,730

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	<i>Brought forward</i>	1,285,745,730
Rainbow trout from the state of New Hampshire in exchange for Atlantic salmon.....	115,000	
Rainbow trout from the Southside Sportmen's Club, Long Island, N.Y., donation,.....	36,000	
Cutthroat trout from the United States Bureau of Fisheries in exchange for Atlantic salmon.....	250,000	
Steelhead salmon from the United States Bureau of Fisheries in exchange for Atlantic salmon.....	330,000	
Speckled trout from the State of New Hampshire in exchange for Atlantic salmon.....	1,335,500	
Speckled trout purchased.....	325,000	
Loch Leven trout from the United States Bureau of Fisheries in exchange for Speckled trout.....	411,000	
		2,802,500
		1,288,548,230

- (a) Out of this number 1,414,000 were shipped to the Quebec Provincial Government.
(b) Out of this number 10,000,000 were shipped to the North Dakota Game and Fish Commission.

In addition to the above the following were received:—

Cutthroat trout fry from the Cranbrook District Rod and Gun Club in exchange for Kamloops trout.....	25,000
Black bass, two and a half to five inches in length, from the North Dakota Game and Fish Commission in exchange for Pickerel.....	975
Crappie, two to five inches in length, from the North Dakota Game and Fish Commission in exchange for Pickerel.....	400

PLANTING OF EYED EGGS

The planting of eyed sockeye salmon eggs on selected portions of what were at one time the most important spawning areas of the Upper Fraser watershed and other isolated waters was continued on a more extensive scale than ever before. Under existing conditions, this is the only feasible method whereby many extensive and important spawning grounds can be restocked. These grounds are so far removed from existing hatcheries that it is quite out of the question to transfer fry from the hatcheries to them. Plantings of this nature were made from the Pemberton hatchery in the Quesnel lake, the Anderson and Seton lakes and the Stuart lake areas of the Upper Fraser; from the Cultus Lake hatchery to the Shuswap lakes area, all in the Fraser River watershed; from the Anderson Lake hatchery to Great Central and Sproat lakes, Vancouver island, as well as numerous smaller plantings in other places.

STOCKING OF BARREN LAKES

The stocking of barren lakes from which mature fish are shut off by falls and other barricades was continued on a more extensive scale. The returns that are apparent from such plantings are most gratifying and the various hatchery officers in the more remote and mountainous districts gave considerable time to an examination of their surroundings with a view to a further extension of such work. Lakes of this nature are usually teeming with natural food and, as they contain few, if any, mature fish or enemies, they are, in effect, natural retaining ponds on an extensive scale.

REARING OF FRY

Retention and feeding of fry was given greater attention, and the distribution of advanced fry and fingerlings was greater than ever before, exceeding the record distribution of 1922 by twenty per cent. The expansion in this direction that has taken place in recent years is indicated, as follows:—

	Number distributed.
1921.....	22,253,000
1922.....	28,672,900
1923.....	35,412,000

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TRANSFER OF MATURE FISH

Numerous lakes in the Prairie Provinces that do not contain fish and are not suitable for the better species handled in the hatcheries were stocked with yellow perch, catfish, pike and suckers by transfer from other bodies of water. Selected waters in British Columbia also received allotments of small black bass in the same way from waters in the province in which they have been established. White Bear or Carlyle lake, near Carlyle, and Ketepwa lake, near Fort Qu'Appelle, Sask., were also stocked with black bass and crappie fingerlings, which were secured through the North Dakota Game and Fish Commission from the overflowed lands adjacent to the Mississippi river, in exchange for pickerel eggs from the Kenora hatchery.

DESTRUCTION OF COARSE FISH

Since commercial fishing started in lake Winnipegosis, Manitoba, the suckers and other coarse fish have rarely brought sufficient prices to pay for handling. Consequently, the fishermen have devoted their energies to the taking of whitefish and other marketable species, the result being that the coarse fish increased in numbers out of all proportion to the better varieties. The predominance of the coarse fish also tends to keep down the better varieties and further upset the balance of nature. On the other hand, there are numerous small prairie lakes in which no fish are indigenous and any variety is considered a boon by the local residents. Consequently, suckers were trapped as they were ascending some of the streams in the southern part of lake Winnipegosis to spawn. These fish were destroyed and the eggs of such as were ripe when they were caught were utilized for stocking the poorer class of prairie lakes, above referred to. In addition to the eggs a considerable number of the fish themselves were transferred to the lakes in question.

Forty-two thousand suckers were destroyed in lake Winnipegosis and twenty-eight thousand coarse fish, principally squaw fish, were destroyed in Cultus lake during the season.

ACCLIMATIZATION

Spring salmon of the Pacific have been caught in lake Ontario in all stages of growth, from the fry a few weeks old to mature fish in spawning condition, over twenty pounds in weight. Eastern whitefish up to four and one-half pounds in weight have been caught in British Columbia lakes. Black bass from the East are firmly established in Christina lake in southern British Columbia and in several lakes in Vancouver island. Eastern speckled trout abound in one or more lakes in British Columbia, the Atlantic salmon of various sizes, from fingerlings to fresh run fish in prime condition, and kelt on their return to sea after spawning have been caught in the Cowichan river, British Columbia, within the last two years. One angler of Duncans has captured no less than seven adult Atlantic salmon in this stream.

EXPANSION

Owing to a lack of the necessary appropriation, no expansion in the way of new establishments was accomplished, but operations from existing hatcheries were extended in the way of prospecting undeveloped areas with a view to collecting eggs and in improving the facilities and extending operations at existing hatcheries. The old hatchery at Pitt Lake, which was a temporary structure, was replaced by a log building 44 feet by 40 feet, with a capacity of four million five hundred thousand eggs. An eyeing station with the capacity of one million five hundred thousand eggs was provided in rented quarters in Nelson, B.C., and an experienced hatchery officer was loaned to direct the operation of a small hatchery built by the Rod and Gun Club of Cranbrook, B.C.

INSPECTIONS

Thorough inspections were made by District Inspector Harrison of a large part of the interior of southern British Columbia and of the Quesnel lake district for the purpose of ascertaining their requirements and possibilities from a fish culture standpoint. A large portion of the interior of Nova Scotia was covered by Chief Inspector Finlayson, and the headwaters of the Northeast Margaree river and of Little river, Cheticamp and the lakes of that region were covered by District Inspector Catt. These last two inspections were for the purpose of determining the possibilities of the respective districts from the standpoint of collecting speckled trout eggs. At the present time the department is operating thirty-three main hatcheries, nine subsidiary hatcheries and four salmon retaining ponds. The output from these establishments during 1923 was over twenty per cent in excess of that of 1922, and is shown by species and provinces in the following statement:—

HATCHERY OUTPUT, BY PROVINCES, OF EGGS, FRY AND OLDER FISH DURING 1923

Nova Scotia—		
Atlantic salmon.....	7,933,650	
Rainbow trout.....	96,500	
Speckled trout.....	522,800	
		8,552,950
New Brunswick—		
Atlantic salmon.....	8,902,395	
Rainbow trout.....	407	
Speckled trout.....	319,409	
		9,222,211
Prince Edward Island—		
Atlantic salmon.....	985,842	
Speckled trout.....	209,292	
		1,195,134
Ontario—		
Atlantic salmon.....	148	
Spring salmon.....	175,480	
Whitefish.....	335,595,000	
Salmon trout.....	29,063,850	
Cisco.....	1,850,000	
Pickrel.....	169,570,000	
		536,254,478
Manitoba—		
Whitefish.....	150,080,000	
Pickrel.....	41,590,000	
		191,670,000
Saskatchewan--		
Whitefish.....	24,470,000	
Black bass.....	898	
Crappie.....	365	
		24,471,263
Alberta—		
Atlantic salmon.....	142,333	
Rainbow trout.....	14,732	
Cutthroat trout.....	408,769	
Steelhead salmon.....	260,919	
Sockeye salmon.....	4,503	
Spring salmon.....	2,346	
Coho salmon.....	21,080	
Chum salmon.....	1,953	
Salmon trout.....	178,064	
		1,034,699
British Columbia—		
Atlantic salmon.....	629,588	
Rainbow trout.....	10,905	
Cutthroat trout.....	135,836	
Steelhead salmon.....	41,791	
Kamloops trout.....	2,075,509	
Sockeye salmon.....	89,261,250	
Spring salmon.....	2,094,046	
Coho salmon.....	1,675,700	
Pink salmon.....	3,713,900	
Chum salmon.....	2,892,370	
Speckled trout.....	56,720	
Whitefish.....	12,002,000	
		114,589,615
		886,990,350

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WORK OF BIOLOGICAL STATIONS IN CANADA

ATLANTIC STATION, ST. ANDREWS, N.B.

The subjects investigated by the various workers were as follows:—

Miss Helen Battle, Western University: The effect of extreme physical conditions on the course of the development in fishes.

Miss F. M. Burwash, University of Toronto: Occurrence of iodine in the haddock.

Miss J. T. Henderson, McGill University: The life history of the gribble, *Limnoria*.

Dr. A. G. Huntsman, Director: Supervision.

Dr. F. S. Jackson, McGill University: The comparative histology of the pancreas in fishes.

Prof. A. B. Klugh, Queen's University: The culture of fresh-water entomostraca, and the measurement of light in aquatic habitats.

Prof. A. P. Knight, Chairman of the Board: General supervision; problems in lobster canning.

Mr. A. H. Leim, University of Toronto: The life-history of the shad.

Miss M. Lenz, Queen's University: The effect of various bacteria in decomposing the meat of the lobster.

Mr. N. A. McCormick, University of Toronto: The insulin content of the pancreas and related glands in fishes and other marine animals.

Mr. R. H. McGonigle, University of Toronto: The distribution of the shipworm and the gribble.

Mr. D. J. McLeod, Queen's University: The effect of various bacteria in decomposing the meat of the lobster.

Mr. E. C. Noble, University of Toronto: The insulin content of the pancreas and related glands in fishes and other marine animals.

Prof. E. E. Prince, Secretary-Treasurer of the Board: Administration.

Prof. G. B. Reed, Queen's University: The early stages of bacterial decomposition of the lobster meat.

Mr. W. C. M. Scott, University of Toronto: The embryology of the liver, the pancreas and the islets of Langerhans in bony fishes.

Mr. R. G. Sinclair, Queen's University: A study of fresh-water entomostraca.

Miss E. A. Smith, Queen's University: The rate of migration of the bacteria of decomposition from the intestinal tract of fish.

Mr. M. I. Sparks, University of Toronto: The effect on marine animals of extreme temperatures.

Miss E. M. Taylor, University of Toronto: The physical factors determining the hatching of fish eggs.

Miss H. I. Wilton, Queen's University: The growth of the clam under various conditions.

Miss M. H. Wilton, Queen's University: The growth of the clam under various conditions.

The Royal Ontario Museum of Zoology sent to St. Andrews three members of its staff, Dr. E. M. Walker, Mr. A. Kurata and Mr. S. Logier, who were given the facilities of the laboratory for the collection of material, in particular of fishes, of which a large number of casts were made. Dr. D. Fairchild and Mr. G. B. Fairchild, of Washington, D.C., were granted the facilities of the laboratory for a part of the month of August.

The weekly and monthly collections of plankton and hydrographic material at established points in the Passamaquoddy region, and daily records of the temperature of water and air at St. Andrews have been continued.

FIELD INVESTIGATIONS

An expedition was organized under Dr. Huntsman for investigating the strait of Belle Isle and neighbouring waters in relation to the cod and other fisheries, support for this being given by the Fisheries Branch. The *Prince* operated in the region of the strait from the latter part of July to the middle of September. The C.G.S. *Arleux*, with Dr. Huntsman, Dr. L. Gilchrist of the University of Toronto, and Mr. A. C. Gardiner of Cambridge University (representing Newfoundland), made a general survey during August and September of the region from Cabot strait and Anticosti island through the strait of Belle Isle and around the eastern and southern coasts of Newfoundland. The results obtained demonstrated the dependence of the cod fishery on the hydrographic conditions.

Professor Knight in the early part of the season continued his investigation of the condition of lobster canneries.

Mr. H. C. White, of Queen's University, followed up the results of the planting of trout fry in two brooks near Aylmer, Ont., determining their habits, their enemies, and the number of survivors.

Under a grant from the Council for Scientific and Industrial Research, Mr. R. H. McGonigle, of the University of Toronto, made a survey of the Atlantic coast from the bay of Fundy to the estuary of the St. Lawrence in order to determine the extent of the activities of the marine borers that destroy the wood of piles, buoys, etc.

The Station undertook to co-operate with the Department of Public Works in the examination of test blocks put out in selected harbours along the coast to show the character and rate of attack by marine boring animals. Miss Jean Henderson took over the examination of these blocks.

The study of the currents by means of drift bottles, in which the countries represented on the International Committee on Deep Sea Fisheries Investigations co-operate, has been continued. Two thousand three hundred and twenty drift bottles were put out during 1923 in the following series: From cape Pine south, through the courtesy of the Newfoundland Government; across the St. Pierre bank, by Dr. Ed. LeDanois with the French cruiser *Ville D'Ys*; across the Labrador current north of Belle Isle by the C.G.S. *Arleux*; at a number of points across the strait of Belle Isle by the *Prince*; across Cabot strait by the *Prince*; and three series along the coast of Nova Scotia by the *Prince*.

PACIFIC STATION, NANAIMO, B.C.

Prof. O'Donoghue acted as director for the season of 1923.

The subjects investigated by the various workers were as follows:—

Mr. C. Berkeley: Biochemical studies on molluscs and fishes.

Mr. Jas. Dauphinee, University of British Columbia: Arginase in the tissues of fishes.

Miss E. S. Dowding, University of Alberta: Fluorescence in marine algæ.

Mr. H. A. Dunlop, University of British Columbia: The growth of salmon; pelagic copepods.

Prof. A. Hunter, University of Toronto: Arginase in the tissues of fishes.

Prof. F. J. Lewis, University of Alberta: The conifers.

Prof. C. H. O'Donoghue, University of Manitoba: Migration of starfish; systematic study of Holothurians, Nudibrachs, Testibrachs and Bryozoa.

Mr. H. C. Wailes, Vancouver, B.C.: Marine and fresh water Protozoa.

Mr. A. Fee, of the University of British Columbia, was given the facilities of the laboratory for the summer in return for assistance with the collections.

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Trips of exploration were made to Union bay, Discovery passage, Friday harbour, and Victoria.

Mr. R. E. Foerster investigated the life-history of the sock-eye salmon in Harrison and Cultus lakes, with particular reference to the food and enemies of the young.

The Station co-operated with the Department of Public Works in studying the work of the marine boring animals that attack wood. Mr. Dunlop undertook the examination of the test blocks sent in from time to time from the series placed at suitable points on the coast by the engineers of the department.

The retiring director, Dr. C. McLean Fraser, represented the Station at the Pan-Pacific Scientific Congress held in Australia in August, 1923.

In the course of the past year the membership of the Biological Board was increased by the addition of three members, two, Mr. A. Hanfield Whitman of Halifax, N.S., and Mr. John Dybhavn from Prince Rupert, from the fishing industry, and one, Mr. J. J. Cowie, from the administrative staff of the department.

EDUCATIONAL EFFORT

A sum of seventy thousand dollars has been placed at the disposal of the Biological Board for the purpose of establishing stations on the Atlantic and Pacific coasts at which will be given to fishermen and others directly concerned practical demonstrations in the best methods of processing all kinds of fish, and from which will emanate to the villages and settlements all over the coast the knowledge acquired at the stations. The centre of the educational effort on the Atlantic coast will be at Halifax. It is intended that the Halifax station will contain a chemical laboratory, a bacteriological laboratory, a model fish canning plant, a model fish drying plant, a model smoke house and means for demonstrating the most approved methods of curing various kinds of fish. It is planned further to build up a museum furnished with models and photographs of boats and vessels of different types used in the fisheries in the principal fish producing countries of the world, also of nets, lines, traps and other fishing gear, of curing establishments, etc., and the utensils used therein, and where lectures will be given on all phases of the fishing industry. In short, it is intended to make the station a centre from which definite practical information can be obtained upon all subjects connected with the business of fishing and the preparation of fishery products.

In connection with the stations, the Biological Board plans to arrange for public addresses to be given in different places along the coast by men who are recognized leaders in the fish business. Definite efforts will also be made to publish educational pamphlets on different fishery subjects. Ultimately, as the utility of the station becomes recognized and a demand arises in outlying points for technical instruction, short courses of instruction will be provided in different localities.

It is anticipated that the board will establish its educational centre on the Pacific at Prince Rupert.

NATURAL HISTORY OBSERVATIONS

In the course of the summer and fall of 1923, the department's naturalist continued his observations along the shores of Cumberland, Pictou, Antigonish, Richmond and Cape Breton counties, Nova Scotia, with a view to gathering knowledge of the sex, size, weight and spawning condition of lobsters in these waters. He also continued his investigations into the condition of the scallops in Mahone Bay, N.S. In addition to these, the naturalist carried on investi-

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gations into the run of salmon to the Nova Scotia rivers emptying into the strait of Northumberland and of the seasonal changes this fish undergoes in passing from the sea to its spawning beds. As a result of these observations much interesting and useful information has been placed in the hands of the department.

The prosecution of our fisheries is a hazardous business and year by year the toll paid in human life is considerable. I regret to report, therefore, that during the year under review thirty-one fishermen were lost; twenty-three on the Atlantic and eight on the Pacific.

I am, sir,

Your obedient servant,

A. JOHNSTON,
Deputy Minister of Marine and Fisheries.

APPENDIX I.

REPORTS OF INSPECTORS OF FISHERIES

REPORT OF CHIEF INSPECTOR WARD FISHER, PROVINCE OF
NOVA SCOTIA, FOR 1923

Each year reveals one or more outstanding condition affecting the fishing industry. Obviously this is to be expected, as the fisheries are of a most varied nature and the ramifications of the trade extensive. Nineteen twenty-three presented unusual conditions and problems, as can readily be appreciated by the very considerable decrease in the catches of several principal varieties of fish, and in the substantial decrease in the total landed and marketed values.

Extraordinarily severe weather and ice conditions prevailed during the first four months. The coast was hemmed in by extensive ice-fields, preventing the launching of small boats, thus causing continued suspension of the operations of the inshore fishermen, except comparatively small and desultory efforts in several of the more favourably located districts. If it had not been for the steam trawler fleet the valuable fresh and smoked fish trade that has been developed the past ten years would have been badly demoralized, as the demands of the markets would have had to be met by shipments from the United States. The trawler fleet was the only dependable source of supply, and while experiencing exceptional operating difficulties continued to land fair catches during the four months.

The above noted unfavourable conditions were greatly aggravated by the American tariff, resulting in general discontent on the part of the fishermen, as the buyers were unable to sustain or increase the prices for the catches. The high cost of operations, together with the low prices for the catches, resulted in a large number of fishermen abandoning the industry for other means of employment, or leaving the province for the time being.

While the above brief review may not be particularly heartening, due to abnormal conditions obtaining which were beyond the control of the Canadian authorities, there has been the saving element of a settled determination to hold fast to the industry for the better times that are bound to come as normal conditions return.

It is gratifying to report that the fresh fish trade, and also the trade in smoked fish, particularly finnan haddies and fillets, withstood the shock of the American tariff, and, indeed, was increased as the efforts of the dealers to extend the Canadian trade met with signal success.

In addition to the general expansion of the Canadian trade, successful experiments were made to gain markets at points hitherto looked upon as too remote to be considered. For instance, smoked shipments were made to Denver, Colorado. The shipments arrived in excellent condition and resulted in a repeat order by wire. A shipments of 4,000 boxes of specially processed smoked fish to Cape Town, South Africa, also arrived in good condition, with the probability that a permanent trade may be developed with that distant country.

The lobster fishery of the western district opened March 1, under heavy disabilities, as the ice was piled in heaps along the shore, making impossible any operations of a remunerative character. The total catch for March and April was only 12,511 cwts., valued at \$278,437, as compared with 26,266

cwts., and \$496,631, the same two months of the previous year. It will be of interest to note that the catch for March and April, 1921, when the fishery was operated under most favourable conditions, was 66,326 cwts.

Happily the abnormal features that obtained during the first four months were greatly relieved, and conditions generally improved until the end of the year. The prospects for 1924 are good, as the available supplies will in all likelihood be absorbed early in the new year.

THE MARKETS

The markets were most unpromising for the greater part of the year. The more distant foreign trade had not recovered from the general depression of the previous years, consequently the adverse exchange made impossible any worth-while resumption of business. In addition, the American tariff gave substantial grounds for believing that the trade in pickled fish would be unremunerative. The duty of \$2 per barrel was considered prohibitive. As a consequence many of the fishermen abandoned the herring fishery. Pickled herring was a drug on the market, selling as low as \$4 per barrel. Also the increased duties on fresh and other fish greatly disturbed the trade and seriously affected the prices paid the fishermen for their catches. It is estimated that over 30 per cent of the fishermen suspended operations; in some districts fully 80 per cent ceased operations for some months.

The alarm, however, was greater than the situation warranted, as the markets improved to a marked degree toward the end of the year, when good quality pickled herring and mackerel were at a premium, while the supply of dried fish had been well absorbed at satisfactory prices, with the prospect that the available stock would be all taken up before the spring catch of 1924 would be ready for the market. It is fairly safe to state that a first class grade of pickled herring will find ready sale at \$10 per barrel, and dried fish at \$9 or \$9.50 per quintal.

The canned lobster trade suffered unusual depression, which involved a number of the dealers in heavy losses. Some 60,000 cases of the total Canadian pack, carried over from 1922, were unsold, and as a consequence of the heavy operations of 1923 it was quite impossible for the markets to absorb the heavy carry-over. At the end of the year about 50,000 cases were in store, with little prospects of being disposed of except at prices below the cost of production. The packers will be under the necessity of reducing the prices to the fishermen the coming year or of reducing the pack by at least one-third. The latter course is improbable, if not indeed quite impracticable, unless action is taken to prohibit the taking of small lobsters in districts favourably located for the trade in live lobsters of export size.

CATCHES AND VALUES

The following is a summary of the catches and values of some of the principal varieties of fish. As a significantly noteworthy arrangement, the lobster fishing and canning industry has the place of honor which it has gained by its actual value to the fishermen and its importance to the export trade as compared with the cod and other fisheries that have hitherto had precedence in the estimation of values. The total landed value of the cod fishery of Nova Scotia for 1923 was \$1,796,770, while the total value of the lobster catch was \$2,239,187. In the table of fish and fish products exported from the whole of Canada for 1922, as compiled by the External Trade Branch of the Dominion Bureau of Statistics, the value of the lobsters exported is shown to be \$6,097,710, while that of cod was \$5,719,627, or \$378,083 in favour of the lobster industry.

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It is quite apparent from the above that the strong and continued agitation for increased protection to the lobster fishery is based on sound economic grounds and should receive the consideration the importance of the industry deserves. It is hoped that definite steps may be taken at an early date for a thorough-going investigation of the conditions at present affecting the fishery.

THE LOBSTER FISHERY

The total lobster catch for 1923 was 172,720 cwts., having a landed value of \$2,239,187, as compared with 173,706 cwts., and \$1,953,848 for 1922.

The total pack for 1923 was 63,971 cases, as compared with 64,552 cases for 1922. The total value of the pack was \$2,040,505 for 1923 as compared with \$2,018,315 for 1922.

The total marketed value for 1923 was \$3,081,647 as compared with \$2,913,087 for 1922.

The following is the catch and pack by counties:—

	Catch		Pack	
	cwts.	\$	cases	\$
Inverness.....	17,366	185,307	8,120	249,943
Victoria.....	8,300	73,731	3,737	139,842
Cape Breton.....	14,602	126,435	7,201	225,032
Richmond.....	6,464	64,346	2,640	77,011
	46,732	449,819	21,698	691,828

Of the above 355 cases of tomalley, valued at \$3,599 are included.

Halifax.....	5,892	84,244	1,346	44,029
Guysboro.....	9,717	103,068	3,414	104,715
Antigonish.....	10,956	117,844	5,473	171,690
Pictou.....	21,575	217,369	11,585	341,073
Colchester.....	918	11,018	459	13,750
Cumberland.....	11,290	120,996	5,507	165,664
	60,348	654,539	27,784	840,921

Included in the above pack are 609 cases of tomalley, valued at \$6,322.

Lunenburg.....	1,552	20,084	267	8,041
Queens.....	2,000	25,369	466	13,995
Shelburne.....	16,242	298,891	3,864	130,823
Yarmouth.....	32,340	520,539	8,382	274,827
Digby.....	12,003	231,571	2,603	91,079
Annapolis.....	1,358	34,750		
Kings.....	145	3,625		
	65,640	1,134,829	15,582	518,765

Included in the above pack are 129 cases of tomalley, valued at \$1,088.

COD AND HADDOCK

The total catch of cod was 1,048,943 cwts., having a landed value of \$1,796,770 and a marketed value of \$2,434,492, as compared with the catch of 1,560,271 cwts., in 1922, having a landed value of \$3,003,056 and a marketed value of \$3,555,637.

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The operations of the Lunenburg Grand Banks fleet show that the decrease was largely due to curtailed operations. Eighty vessels only engaged in the fishery during 1923. This is the smallest number for more than twenty years and nineteen less than 1922. The total landings of the fleet were only 194,600 quintals, as compared with 312,075 quintals for 1922. Of this catch 20,550 quintals were taken on the early spring trip, 47,325 in the late spring trip and 126,725 in the summer trip. The average catch per vessel was very good, being 2,432 quintals. The operating expenses of this fishery continue to be heavy since the war, and are out of proportion compared with the prices received for the catches. A fair profit cannot be made at a less price than \$7 per quintal.

The haddock catch was 297,023 cwts., valued at \$486,492, as compared with 298,593 cwts., and \$530,316 in 1922. The marketed value was \$1,029,787.

HERRING

The herring catch was 165,886 cwts., having a marketed value of \$295,391, as compared with 183,138 cwts., and \$364,815 in 1922. For several years past the herring fishery has been neglected, owing to the lack of markets for the pickled product. This trade is gradually decreasing.

MACKEREL

The total catch was only 79,184 cwts., having a landed value of \$245,666 as compared with 166,538 cwts., and \$825,852 the preceding year. The marketed value was only \$388,051 as compared with \$1,129,104 in 1922.

It will be noted that the decrease in the total value of the fisheries of nearly two million dollars is almost altogether made up of the decreases in the values of the cod and mackerel fisheries, cod being responsible for \$1,121,145 and mackerel \$741,053.

The spring run was small in size and erratic in movement, although good catches were taken in Yarmouth county in June. The Inverness run was a failure. The prices were low, the fishermen receiving only one cent per pound for a large portion of their catches. The catches along the New England coast were unusually large, with the result that the American markets were over supplied, consequently it was impossible for shipments to be made from Nova Scotia, as the prices at Boston were less than the cost of barreling, icing, transportation and duty from Halifax or Yarmouth. The situation was made the more difficult as some of the dealers had considerable stocks in storage of the catch of 1922, for which twenty cents apiece had been paid. It would have been to the advantage of our fishermen and dealers to have pickled the large sized fish, as toward the end of the year there was a good demand for this class of goods, at excellent prices.

SALMON

The salmon catch was 11,217 cwts., having a marketed value of \$202,090, as compared with 8,577 cwts., and \$154,771 in 1922.

The following reports by districts will be of interest in showing the local conditions with respect to catches and values:—

DISTRICT NO. 1, CAPE BRETON.—Inspector McLeod.

The mackerel and cod were the two deep sea fisheries that suffered from unfavourable conditions; the mackerel run being a failure and the cod prices being so low that many of the fishermen found it unprofitable to operate. Compared with 1922 there were 986 less fishermen, 365 less boats, 1,483 less nets, 3,256 less trawls, and 1,030 less hand-lines engaged in the industry.

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It is encouraging to note the substantial increase, amounting to about \$112,000 in the values of the salmon, swordfish, halibut and squid fisheries.

Lobsters.—The catch of lobsters was 46,732 cwts., valued at \$449,819, as compared with 47,898 cwts., valued at \$363,078, for 1922, showing a decrease in the catch of 1,166 cwts. and an increase of \$86,741 in the value. The marketed value was \$730,981, as compared with \$695,851 for last year, or an increase of \$35,130.

The fishery was prosecuted with the greatest vigour, as it afforded remunerative employment and ready returns at the season of the year when other varieties of fish were in poor demand. High prices prevailed throughout the entire season. The financial returns were over 100 per cent higher than cod, which came next in value. The heaviest landings were at Mainadieu, Port Hood Island, Alder Point and Big Bras d'Or.

Cod.—The catch of cod was 89,071 cwts., having a value of \$120,196, as compared with 135,635 cwts. and \$178,312 for 1922, showing a decrease in the catch of 46,564 cwts. as well as a decrease in the value of \$58,116 as compared with 1922. Marketed value, \$246,790, and for 1922, \$282,172.

The decrease in the catch is due entirely to fewer fishermen having engaged in the industry. The fish were very abundant on all the fishing grounds, especially during the months of July, August, September, October, November and December. The principal landings were at Petit de Grat, Eastern Harbour and North Sydney.

Haddock.—The total landed catch was 58,059 cwts., having a value of \$55,350, as compared with 72,111 cwts. and \$85,773 for 1922, showing a decrease of 14,052 cwts. in the catch and \$30,423 in the value. The marketed value was \$194,117, compared with \$148,691 for 1922, an increase of \$45,426.

The principal landings were at Port Hawkesbury, North and South Ingonish. At North Ingonish a decrease of 11,578 cwts. is shown, due to the suspension of the operations of five trap-nets. At the place during the month of May a great quantity of haddock was liberated from the traps, as the owners would not sell at the low prices offered.

Herring.—The catch of herring was 30,007 cwts., having a value of \$27,147, as compared with 26,132 cwts. valued at \$26,028, for 1922, an increase in the catch of 3,875 cwts., and an increase in the value of \$1,119. The marketed value was \$48,733, as compared with \$45,244 for the preceding year, an increase of \$3,489.

The largest landings were at St. Ann's, Eastern Harbour, Grand Etang and Margaree Harbour. The catches were composed of spring herring almost entirely.

Mackerel.—The catch landed was 18,717 cwts., valued at \$48,809, as compared with 38,372 cwts., valued at \$154,551, for the preceding year, a decrease of 19,665 cwts. in the catch and \$105,742 in the value. The marketed value was \$76,989, as compared with \$198,158 for 1922, a decrease of \$121,169.

The principal landings were at L'Ardoise, Hawkesbury and Petit de Grat. For some unaccountable reason these fish did not appear on the coast of Inverness in as large schools as in previous years. At Eastern Harbour the catch was only 300 cwts., compared with 4,812 cwts. for the previous year. At Margaree Harbour the catch was only 125 cwts., compared with 1,827 for 1922.

Swordfish.—The total catch was 9,364 cwts., valued at \$59,602, compared with 3,409 cwts. with a value of \$42,569 for the preceding year, an increase of 3,409 cwts. in the catch and \$17,033 in the value. The marketed value was \$98,639 compared with \$46,773 for 1922, an increase of \$51,866.

The greatest landings were at Petit de Grat, Louisburg, South Ingonish and North Sydney. These fish were plentiful in the waters surrounding Isle Madame, and also along the coast of L'Ardoise, Gabarus, Louisburg, Mira Bay, Glace Bay and Sydney, but the high wind that prevailed during the time that these fish struck the coast of Ingonish and Neil's Harbour greatly interfered with fishing operations.

Smelts.—The catch of smelts was 2,181 cwts., having a value of \$21,764, as compared with 2,209 cwts., valued at \$22,689, for the preceding year, a decrease of 28 cwts. in the catch and \$925 in the value. The marketed value was \$25,623, as compared with \$23,766 for 1922, an increase of \$1,857.

The decrease in the catch is due to the severe weather that prevailed during January and February, and the extremely mild weather during November and December.

Squid.—The catch was 1,983 bbls. having a value of \$7,108, as compared with 872 barrels, valued at \$1,910 for 1922, an increase of 1,111 barrels and \$5,198. The total marketed value was \$7,136, as compared with \$1,924 for the year previous, an increase of \$5,212.

These fish were exceptionally plentiful along the coast of Inverness from Hawkesbury to Eastern Harbour, and the catches so heavy that the fishermen were obliged to cease operating, the cold storage plants at Hawkesbury being quickly filled to capacity. Great numbers of these fish ran ashore at the headwaters at Sydney Harbour and St. Ann's Harbour.

Salmon (Commercial).—The total landed catch was 3,935 cwts., having a value of \$49,265, as compared with 2,153 cwts., valued at \$24,017, for the preceding year, an increase of 1,782 cwts. in catch and \$25,248 in the value. The marketed value was \$63,386, as compared with \$30,587 for 1922, an increase of \$32,799.

The largest landings were at Margaree Harbour, Grand Etang, Eastern Harbour and St. Ann's. It should also be noted that these fish were of a much larger size than have frequented this coast for the past three or four years.

Salmon (Domestic).—Anglers have had the best season known on the Margaree river, and records were established in quantity and size. One sportsman landed eight salmon on August 20, the largest weighing 36½ pounds. Eleven anglers landed 1,361 salmon during the season. The catch with the fly was 137 cwts., compared with 91 cwts. for the preceding year. It is also very pleasing to note that fifteen salmon were caught in the Middle river, and twelve salmon in North river, St. Ann's, with rod and line, where it was supposed that salmon would not take the fly, as none had been caught previous to this season.

As this island is becoming better known as a Fisherman's Paradise, increased demands are made upon overseers and guardians for closer supervision of our excellent sporting streams. It gives me great pleasure to report that the officers of this district have performed their numerous duties in a most efficient manner and are to be highly commended.

Oysters.—The catch was 2,136 barrels, valued at \$10,302, as compared with 747 barrels, valued at \$4,278 for 1922, an increase of 1,389 barrels in the catch and \$6,024 in the value. Total marketed value was \$12,147, compared with \$4,478 for 1922, an increase of \$7,669.

The increase in the catch is due to oysters being far more plentiful, favourable weather and an increased number of fishermen engaging in the industry. The largest landings were at Orangedale and Washabuck.

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Scallops.—Some were caught on cod trawls in deep water in Inhabitants basin, Richmond county, and some were washed ashore at Money Point, cape Smoky, Aspy bay and cape Dauphin, Victoria county, during the severe storm that raged on October first and second.

DISTRICT No. 2.—Comprising the counties of Halifax, Guysboro, Antigonish, Pictou, Colchester, Cumberland and Hants.—Inspector Sutherland.

There are two distinct classes of fishermen in this district, the one being entirely dependent on the fisheries for a means of livelihood, and the other being composed of farmers who engage in the lobster fishery only. Halifax and Guysboro counties are the chief bone fide fishing districts.

The distinctly fishing districts suffered severely from the depression that has existed since 1920. The farmer-fishermen, however, had a satisfactory season, as the landed value of the lobster catch was the greatest for many years, being \$160,000 in excess of that for the previous year. The fishermen's prosperity, however, was not generally shared by the packers, as the markets for the canned product were greatly overstocked.

The outstanding features of the year's operations were the failure of the mackerel fishery, especially in Halifax county west, and the general increase in the value of the lobster catch.

CATCHES AND VALUES

Lobsters.—The catch was 60,348 cwts., valued at \$654,539, as compared with 63,709 cwts. and \$494,061 in 1922. The noteworthy feature of the fisheries of this district for 1923 was the increase of \$160,478 in the landed value of the lobster catch, while the quantity taken was 3,361 cwts. less than in 1922 notwithstanding the extensions to the regular spring seasons, which accounted for 5,189 cwts. It is interesting to note that the value of the catch to the fishermen in 1923 was \$411,482 greater than the 1921 catch.

Increased catches were taken in Colchester county north (858 cwts.), where two new canneries were operated; Antigonish county (647 cwts.); Guysboro county east (2,039 cwts.); and Halifax county west (1,024 cwts.).

Cod.—The catch of cod was 178,932 cwts., valued at \$308,019, as compared with 180,403 cwts. and \$326,869 in 1922. Of the total catch 97,400 cwts. were taken offshore by vessels and steam trawlers, principally the latter; 60,000 cwts. were landed at Canso and 32,600 cwts. at Halifax, and 10,360 cwts. by vessels landing in Halifax county east.

Practically the total catch was landed in Halifax and Guysboro counties, and there was a general decrease in the catch of inshore boats.

Haddock.—The catch was 159,359 cwts., valued at \$286,390, as compared with 121,950 cwts. and \$234,668 in 1922; 108,750 cwts. of the catch was taken offshore, principally by steam trawlers landing at Halifax and Canso.

Herring.—The catch was 70,527 cwts., valued at \$53,519, as compared with 68,494 cwts., valued at \$67,296, for the previous year. The catch in Cumberland county west, and Antigonish county shows a substantial increase, while smaller catches were landed in Guysboro county and Halifax county east. Owing to especially poor markets the fishermen did not prosecute the fishing with energy. At the end of the year, however, the price of pickled herring was about \$8 per barrel, as the supplies on the market were low. If there had been prospects for such prices, double the quantity of herring would have been packed, especially in Halifax county west.

The total catch for this district was disposed of as follows: Pickled, 6,141 barrels; fresh, 12,825 cwts.; smoked, 12,256 cwts.; and for bait, 7,778 barrels.

Mackerel.—The mackerel catch was 34,628 cwts., having a value of \$89,093, as compared with 75,095 cwts., valued at \$342,624, in 1922. The greatest loss of the year was in the mackerel fishery of Halifax county west, where the catch fell off 32,261 cwts., with a loss to the fishermen of \$178,159. The catch in Halifax county east showed an increase. The heavy run of fish came late in May when the prices offered were only about $.02\frac{1}{2}$ cents per fish, which did not pay the fishermen to operate. In Guysboro county, mackerel also fell off so that the season throughout this district was a decided failure, although the quantity taken compares favourably with an average season. The home market can absorb only a small part of the catch, and high transportation and tariff make the American market almost prohibitive. Consequently the mackerel fishermen look for little relief until these matters are remedied. The average price offered was $.02\frac{1}{2}$ cents per pound.

Unlike 1922, spring mackerel did not trim the shores of Halifax county west and were therefore beyond the reach of seine and trap-net fishermen. Fall mackerel were only taken in Guysboro county east and Halifax county west. Prices during the fall season were somewhat better, about .05 to .06 cents per pound. The salted mackerel market was brisk during the last month of the year.

Albacore.—The catch was 2,098 cwts., having a value of \$4,469, as compared with 1,029 cwts. in 1922, valued at \$1,938. The increase in this fishery is due to the fact that albacore were scarce on the American coast during the early part of the season and prices on the Boston market were good. When the price is small the proceeds of sale do not cover duty and transportation charges.

Shad.—The catch was 878 cwts., valued at \$9,520, as compared with 485 cwts. in 1922, having a value of \$6,487. The catch of shad was the best since 1917. The two weeks extension to the regular season accounts for 244 cwts. Large numbers of small shad are reported by the fishermen, which would indicate that the three years' close season was of some benefit to the fishery. Practically the total catch was taken in Cobequid bay and Cumberland basin. About 100 barrels were salted and sold for \$30 per barrel, the remainder being sold fresh at \$10 per cwt.

Salmon.—The catch was 5,109 cwts., valued at \$65,865, as compared with 4,587 cwts. and \$58,605 in 1922. A further increase is noted in the salmon catch of 522 cwts., but the two weeks extension to the regular season in Pictou and Antigonish counties and bay of Fundy accounts for 206 cwts. Since 1920 the catch has increased about 200 per cent in this district, and is as follows:—1920, 1,717 cwts.; 1921, 3,192 cwts.; 1922, 4,587 cwts.; 1923, 5,019 cwts. The catch for 1923 is the highest since 1913.

Oysters.—The catch was 629 barrels valued at \$4,451, as compared with 717 barrels with a value of \$5,214 for the preceding year. The oyster catch shows a further decrease of 88 barrels. This fishery has gradually decreased from 2,000 barrels in 1912 to its present condition.

DISTRICT No. 3.—Comprising the counties of Lunenburg, Queens, Shelburne, Yarmouth, Digby, Annapolis and Kings.—Inspector Marshall.

The conditions in this district were similar to those obtaining generally along the whole coast. There was a decrease in all kinds of vessels and in the

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number of men operating. There were twenty-five less vessels of 40 tons and over, and about one thousand less fishermen engaged in carrying on the work as compared with 1922.

The lobster catch exceeded that of the previous year both in quantity taken and in value. There was also an increase in the quantity and value of the scallop catch.

Lobsters.—The catch of lobsters was 65,640 cwts., with a value of \$1,134,829, as compared with 62,099 cwts., with a value of \$1,096,709, for the season 1922, an increase of 3,541 cwts., with a value of \$38,120.

The lobster catch shows a slight increase both in catch and value over the previous year, which increase is accounted for by the extension given covering the month of June, 1923.

The quantity shipped alive from the western district during the past season was 29,777 cwts., valued at \$734,116. Of this quantity 17,772 cwts., valued at \$421,689, were shipped to the American markets via Yarmouth, and 12,005 cwts., valued at \$312,427, shipped by well smacks.

Cod.—The total catch was 780,940 cwts., having a value of \$1,368,555, as compared with 1,244,233 cwts., with a value of \$2,497,875, for the previous year, showing a decrease in the catch of 463,293 cwts., valued at \$1,129,320.

Haddock.—The catch was 79,605 cwts., having a value of \$144,752, as compared with 104,532 cwts., with a value of \$209,875, for the previous year, a decrease of 24,927 cwts., with a value of \$65,123.

Herring.—The catch was 65,352 cwts., having a value of \$70,513, as compared with 88,512 cwts., having a value of \$94,357 for 1922, a decrease of 23,160 cwts., valued at \$23,844.

Mackerel.—The catch shows a decrease in the quantity and a marked decrease in the value. The catch landed was 25,839 cwts., valued at \$107,764, as compared with 53,071 cwts., valued at \$328,677, for 1922, a decrease of 27,232 cwts., and a decrease in value of \$220,913.

Halibut.—The catch was 8,772 cwts., valued at \$128,806, as compared with the catch for 1922 of 17,214 cwts., valued at \$214,361, a decrease of 8,442 cwts., valued at \$85,555.

Pollock.—The catch of pollock was 24,688 cwts., valued at \$22,538, as compared with the catch for 1922 of 47,416 cwts., valued at \$44,282, a decrease of 22,728 cwts., valued at \$21,744.

Hake and Cusk.—The catch shows a marked decrease, being only 49,651 cwts., valued at \$45,842, as compared with 142,767 cwts., valued at \$114,364, for 1922, a decrease of 93,116 cwts., valued at \$68,522.

Salmon.—The catch was 2,173 cwts., valued at \$49,925, as compared with 1,837 cwts., with a value of \$46,310, for 1922, an increase of 336 cwts., with an increase in value of \$3,615. There has been a marked increase in this fishery for the past three years, this being about a \$16,000 increase in value over the year 1921.

I find the total quantity of salmon taken in tidal waters with nets and weirs is 1,977 cwts., with a value of \$46,559, and 196 cwts., valued at \$3,366, taken in our rivers with rod and fly.

Scallops.—The catch shows 11,839 barrels taken, with a value of \$68,337, as compared with 10,682 barrels, with a value of \$49,678 for 1922, an increase of 1,157 barrels, with a value of \$18,659. Of this catch 7,577 barrels having a value of \$43,714 were taken in the Bay of Fundy and 4,262 barrels, having a value of \$24,623 in the county of Lunenburg. The above shows a steady

increase in the scallop fishery in the bay of Fundy, and there is no doubt but that it will continue to increase each year, as more fishermen fit out to carry on scallop fishing operations.

LICENSES ISSUED—NOVA SCOTIA

Lobster pound.....	4	Salmon gill-net.....	438
“ packing.....	166	“ trap-net.....	335
“ “ -exten.....	111	Smelt gill-net.....	532
“ fishing.....	8,823	“ bag-net.....	210
Weir licenses.....	93	Salmon permits.....	13
Fish cannery.....	15	Trap-nets.....	365
Anglers permits.....	417	Seine.....	181
Oyster fishery.....	179	Shad gill-net.....	6
Scallop fishery.....	298		

RIVER AND INLAND FISHERIES

The importance of preserving the smelt, alewife, shad, salmon and trout fisheries is obvious, the commercial salmon catch alone having a value of over \$200,000, and smelts \$120,000. The continuance and development of these fisheries is dependent on the free and safe access of the parent fish to the spawning grounds of the rivers and headwaters. A very decided improvement in this regard has taken place the past few years. Pollution of the waters from mill refuse and other detrimental deposits have almost entirely ceased. The conditions in this respect as compared with those obtaining some ten or more years ago are marked. The operators of the saw-mills and paper mills on the more important rivers and streams have co-operated in every reasonable effort to prevent pollution of the waters. Obstructions to the free ascent of fish have been removed from many of the principal streams. The character of the artificial fishways constructed are a very great improvement on former types.

In addition to the more vigorous general efforts a number of the principal streams have received special attention, such as the Margaree, the Medway, St. Mary's and the Mersey. The fishways on the latter river have been thoroughly repaired or reconstructed during the past year. The heavy volume of water flowing down this river has made the task of improvement a most difficult one. It is confidently expected that the improvements will greatly enhance the value of the fishery.

The commercial or coastal salmon fishery is increasing in volume and value, due to the improved conditions noted above.

The relation between the prosperity of the salmon fishery and the development of the tourist trade is very close. It is quite essential that the sport-loving tourist be given every facility and encouragement. Nova Scotia should become a popular and prosperous sport fishing district. The salmon sport fishermen comprise a fraternity of the best and most desirable class of tourist, and every effort to improve attractive conditions is fully warranted. The recently organized Tourist Association and kindred bodies are alive to the possibilities in this regard, and are working in close co-operation with the officials of the Fisheries service.

It is not forgotten, however, that while the salmon sport fishery is receiving first attention, the great percentage of visitors to the province are more interested in trout fishing. It is safe to say that for every ten salmon fishermen there are ninety trout fishermen. This is true not only with respect to visiting anglers, but is particularly true with respect to our own native sport fishermen.

Every effort made to improve salmon fishery conditions affects equally the trout fishery, which continues to be in a prosperous condition notwithstanding the constant heavy whipping of the streams each year.

Systematic investigation of the inland waters is now in hand, in order to ascertain the conditions governing successful propagation, as the Fish Culture

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Branch of the department has in hand increased efforts to restock our waters with both salmon and trout.

During the past year more than ten million salmon and trout fry were deposited in the inland waters of the province.

INCREASED COLD STORAGE ACCOMMODATION

The construction of a new plant at North Sydney for the Cape Breton Cold Storage Company will be completed early in the new year. This plant is of a most modern description and well designed for both the fresh and smoked fish trade. The operations will be under the management of Mr. R. T. Matthews, who has had large experience in the business.

Arrangements have already been made to market the product of the plant, which is expected to speedily reach a maximum, as the prolific fisheries of the district north to Ingonish are easily available for supplies. It is also expected that the operations of the plant will develop the fishing fleet along a considerable portion of the coast.

The Yarmouth plant will probably be completed and ready for business about the middle of the year. This plant is well located, particularly for the American trade. It is hoped that a large Canadian trade may be developed by a favourable commodity rate over the Canadian National Railway on shipments for storage and transshipment. This plant will be of great advantage to the industry of the southwestern shore, as fresh fish shipments for Boston and other American centres can be held in storage at Yarmouth, for quick delivery when the markets are favourable.

FISHERY PROTECTION SERVICE

The number of boats in this service has been gradually reduced until at present only four are operated, namely the steamers *Arras* and *Arleux* and the gasoline boats *Mildred McColl* and *A*.

The *Arleux*, under command of Capt. Milne, and the *Arras*, Captain Barkhouse, rendered most excellent and valuable service in the protection of the territorial waters, assisting disabled fishing vessels; light ice-breaking to facilitate the movements of the fishing fleet, and in acting as "mother ships" to the winter fishing fleets of small boats operating off Canso and Lockeport. The services performed the past year were greatly appreciated by the fishermen, and assisted to a large degree in encouraging the fishermen to continue the operations during the winter months. With the aid of these ships the catches were greatly increased, and as a consequence the fishermen and the trade generally were directly benefited.

During July and August the *Arras* was in service with the Grand Banks fleet. The satisfaction given was so evident that she will probably be engaged in like service the coming summer.

With special reference to the coastal duties the Captain reports:—

During the year we had sixty-eight American fishing vessels on our station, which we boarded and examined 188 times.

We had fourteen American swordfishing vessels in our waters and seventy-six Canadian swordfishing vessels. These vessels made headquarters at Louisburg during the swordfishing season and some very large catches were made.

With the *Arras* in close touch with the winter fishing fleet out of Lockeport, to assist them in stormy weather, the catch of fish was above the average.

During the year we steamed 13,492 miles, and were at sea 1,634 hours, and consumed 1,092 tons of coal.

The *Arleux* was engaged during August and September in special tidal and survey work off the Labrador straits of Belle Isle district.

The gasoline patrol boat *A*, carrying a crew of four, covers the Western Nova Scotia district, where formerly three boats of a type similar to the *A* were employed, and performed essential service in protecting the lobster and other fisheries of the district, and in assisting the shore officers in the performance of their duties.

The gasoline patrol boat *Mildred McColl*, carrying a crew of four men, covers the large and important district from Lunenburg to Canso, and the Straits district. This boat was in commission from April 3 to January 17, and during the summer months until October 15 was engaged in lobster and salmon protection in Pictou, Colchester, Cumberland and Antigonish counties, where most effective work was performed, especially in Cumberland county west, on the lobster boundary between the spring and fall seasons. After October 15 the boat proceeded to Halifax and Guysboro counties and was engaged in general protection work until the lobster fishing season opened December 1 in Halifax county west. The boat then patrolled the open and closed districts in Halifax county west and Lunenburg county east until she was laid up about the middle of January.

Any successful administration or oversight of the coastal fisheries is due very largely to the facilities afforded by these two gasoline boats, as the work required to be done is in connection with the inshore trap-net, gill-net and lobster fisheries, and along portions of the coast where it would be impossible to employ either the *Arras* or *Arleux*, even if such boats were available when needed.

REPORT OF INSPECTOR J. F. CALDER, DISTRICT No. 1, PROVINCE OF NEW BRUNSWICK, FOR 1923

This district comprises the counties of Charlotte, St. John, Albert and the Bay of Fundy watershed of Westmorland county.

The value of the yield of the fisheries of this district during the present year, was slightly less than that of the previous year. The value of the catch in a fresh condition for the present year, is as follows: Charlotte county, \$709,431; St. John county, \$153,620; Bay of Fundy watershed of Westmorland county, \$4,891 and \$289 for Albert county; making a total of \$868,231, against \$877,845 for 1922.

The value of the products marketed by the fishermen are as follows: Charlotte county, \$598,503; St. John county, \$81,310; Bay of Fundy watershed of Westmorland county, \$4,891; Albert county, \$289; making a total of \$684,992. The fish dealers marketed products to the value of \$685,617, making a total in all of \$1,663,970, against \$1,639,651 for 1922.

COD

Twenty-one thousand six hundred and one cwts. of cod were taken this year with a marketed value of \$47,310, against 41,435 cwts. for 1922, with a market value of \$87,317. Practically all these fish were taken on the in-shore fishing grounds. The catch for 1922 was exceptionally large for the district while this year's catch was away below the average. One reason why the catch was so small during the present year, is that owing to the severity of the winter, practically no fishing was done at all until late in the spring. On the other hand, the weather during the previous winter was comparatively mild, with the result that good catches of cod were made.

The principal places where quantities of cod are landed are Chance Harbour and Dipper Harbour in St. John county; Beaver Harbour, Wilson's Beach and Grand Manan in Charlotte county.

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HADDOCK

Four thousand nine hundred and seventy-four cwts. of haddock, with a marketed value of \$11,139, were taken this year, while 2,790 cwts. with a marketed value of \$8,343, were taken in 1922. I have pointed out in previous reports that the catch of haddock was becoming less each year; these reports were in accordance with the facts existing at the time they were made out. I am pleased to report, however, that haddock have been more plentiful during the present year than for any season during the past fifteen years.

HAKE

Only 17,912 cwts. of hake, with a marketed value of \$18,981, were taken during the present year, as compared with 93,503 cwts. in 1922, valued at \$116,451. This extraordinary decline in the catch is due altogether to the fact that there was very little opportunity for the fishermen to dispose of hake in any part of the district, as the market was glutted with stocks that were kept over from the previous year; a few buyers did take some at Beaver Harbour and Wilson's Beach. At North Head, Grand Manan, which heretofore has been one of the chief centres of the hake fishery, the dealers carried over from the previous year practically all they had bought. As a result of this, they did not buy and during the present year, consequently, the fishermen did not operate.

POLLOCK

A very small catch of pollock was made during the present year, 28,841 cwts. with a marketed value of \$40,351 against 77,158 cwts. with a marketed value of \$88,633 for the previous year. The large decline in the catch of pollock is due to a scarcity of the fish, for there was a fair market for these fish during all the season. The summer run of pollock was very light, but the fishermen were buoyed up with the hope that when squid made their appearance, which is usually during the first part of August, a good fall run would come in. Unfortunately, they were doomed to disappointment. The run of squid was practically nil, with the result that the fall run of pollock did not put in an appearance. The failure of the pollock fishery was a hard blow to the line fishermen of Campobello, Deer Island and Grand Manan. The failure of the squid to appear is attributed generally by the fishermen, to the unprecedented severe winter of 1923. The winter was so cold and the spring so backward that the ice did not leave our waters until a month or six weeks later than it generally does. I have no doubt that the prolonged low temperature of the water was very destructive to the young fishes, particularly so in the case of the food of the fishes.

HERRING

The smoked herring business at Grand Manan was a failure during the present year, as very few herring, suitable for smoking purposes, were taken in the weirs. The few that were taken were mostly sold in a fresh condition for high prices to the smoke houses at Lubec, Maine. Large herring were reported from time to time as being quite plentiful in the waters outside of Grand Manan Island, but very few reached the weirs. This is generally attributed to the fact that the natural enemies of the herring, the squid, silver-hake and dog-fish—did not put in an appearance, with the result that the herring did not reach the inshore grounds. The scarcity of herring on the inshore grounds was not confined to this district, by any means. The same situation occurred along the coasts of the state of Maine, and also on the Nova Scotia shore of the bay of Fundy all the way down to cape Sable, and even beyond there. As a result

of this scarcity of herring in Nova Scotia, many vessels came from there to this district, particularly Grand Manan, to buy lobster bait. Of course, as herring were scarce here, the available supply for bait was limited. However, nearly 6,000 barrels were taken away for that purpose. The Nova Scotia lobster fishermen would certainly have been in a very bad way if it had not been for the supply of bait they procured from our weirs.

SARDINES

The catch of sardine herring was very small. 134,494 barrels only were taken, against 244,553 barrels for the previous year. But while the catch for the previous year brought \$296,864, the yield for this year netted the fishermen \$395,968.

Owing to the extreme scarcity of sardine herring the combination, which has for a number of years existed among the canners, in so far as buying their supply of fish is concerned, was broken. During most of the fall months there was very active competition among the canners in purchasing herring from the weirs. As a result of this, our fishermen, for the first time since 1918, got a fair price for their catch.

SALMON

There is very little to note in connection with the salmon fishery of the district during the present year. The catch by the commercial fishermen was just slightly less than during the previous year—2,658 cwts. for 1923 against 2,738 cwts. for 1922.

CLAMS

Very little of interest is to be noted in connection with the clam fishery during the present year. 13,057 barrels were taken this year against 12,435 barrels during the previous year. The fishermen, however, received slightly better prices for the yield during the present year.

LOBSTERS

There was a considerable falling off in the lobster fishery for the present year. The catch was 5,813 cwts., against 7,178 cwts. for the previous year. Good prices were obtained for the yield, and most of the fishermen who were engaged in this branch did fairly well while they were at it.

While the present year has been rather a poor one for the fisheries of the district, there are many circumstances which point to a return of good times in the fishing industry. Generally speaking, a good supply of the different kinds of fish is always available, in their respective seasons, but for the past few years the fishermen have been held down by lack of market for their products. The breaking up of the combine of the sardine canners means much to our fishermen, as the sardine fishery is the most valuable one we have. It could not have been much longer continued, with such prices as were paid during the four previous years. Then again, the old stocks of line fish are being got rid of, and 1924 finds us with very little old stocks on hand. It looks as if there would be a good demand for all kinds of fish during the coming year. If these expectations are realized, a large increase in the catch may be confidently looked forward to.

PATROL BOAT "PHALAROPE"

Patrol boat *Phalarope*, Captain Kelly, went in commission on April 1, and was on duty until February 15. The boat was principally engaged up to the end of the open season for lobster fishing, during the spring season, in having

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the size limits for lobsters in the different counties observed. During the close season for lobster fishing, the services of this boat were valuable in preventing illegal fishing; all traps found set during the close season were confiscated and destroyed forthwith.

Owing to the high prices being paid for sardine herring, repeated attempts were made to violate the herring fishery regulations in many places in Charlotte County by the use of drag-seines and also by "driving." The *Phalarope* did good work in suppressing and breaking up such practices, especially at Deer Island.

The *Phalarope* covered about 6,166 miles during the season.

PATROL BOATS "TOGO" AND "SHANNON"

The patrol boat *Togo* was used from April 1 until October 31. On November 1, the *Togo* was returned to her owner, and the *Shannon* was hired. The *Togo* was a very good boat, but the engine in her was not satisfactory and we were therefore compelled to procure another boat. The *Shannon* has a splendid engine, and is a very satisfactory boat for the service. Captain Joy was in command, and has proven to be a very energetic and efficient officer.

The chief work of this boat is the enforcement of the lobster fishery regulations. Owing to the great extent of the lobster fishing grounds off the main island of Grand Manan and the islands and ledges adjacent thereto, coupled with the fact that the United States market for small lobsters is so close at hand, the duties of this officer are by no means easy. However, Captain Joy is doing everything that he possibly can towards having the regulations observed. I feel sure that the present service is an improvement over any previous service.

During the winter there has been a considerable amount of "driving" for herring around the upper part of Grand Manan island, and Captain Joy is devoting practically all his time in an effort to break up this business.

STATEMENT SHOWING LICENSES ISSUED IN DISTRICT NO. 1

Lobster fisherman's.....	653
Fish cannery.....	6
Salmon fishery.....	77
Shad gill-net or drift-net.....	46
Scallop fishery.....	23
Herring Weir.....	552
Permits to dig soft-shell or long-neck clams.....	120
Special lobster pound.....	5
Lobster pound certificates.....	239
Lease of dark harbour.....	1
Total.....	1,722

REPORT OF INSPECTOR R. CROCKER, DISTRICT No. 2, NEW BRUNSWICK, FOR 1923

District No. 2 comprises the counties of Restigouche, Gloucester, Northumberland, Kent, and the strait side of Westmorland county.

The returns show the value of fish taken to be \$1,922,423 as against \$1,803,695 for the previous year, an increase of \$118,728, showing a very gratifying improvement in the operations over the preceding two years.

COD FISHING

This is a decrease over the previous year of some 5,307 cwts. of which 19,850 cwts. belonging to the district of Overseer Landry and is accounted for because of the fact that during the first of October a very heavy storm pre-

vailed, causing a number of fishing vessels to come ashore. This being late in the season the fishermen did not take the trouble to launch their vessels again. Another factor which interfered perhaps with the cod fishing was that wages in the lumber woods were very good and many of the men left fishing early for the purpose of proceeding to the lumber woods. Doubtless thousands of dollars were lost to the fishermen because after this storm of the first of October unusually good weather prevailed for fall fishing.

MACKEREL

This fishery shows a large decrease, the 1922 catch being 23,441 cwts., while this year's catch was 13,455 cwts., with a corresponding marketed value of \$54,054. The decrease in this was accounted for partly by the fact that there was a smaller run of mackerel on this coast, but more particularly to the fact that the price paid to the fishermen was less than the previous year. During the fall of this year very good catches of mackerel were taken on the United States coast, and these catches affect the selling of the frozen mackerel from our district.

ALEWIVES

This fishery also shows a decrease in quantity taken, which is accounted for by the poor demand for salted alewives. Greater quantities could have been taken had there been any prospect of a market as for some days the fishermen emptied their nets allowing the fish to go. A considerable quantity of pickled fish are carried over into 1924 and will doubtless effect the operations of this fishery for the season of 1924.

SALMON

There was an increase in the catch of 3,972 cwts. over the previous year, but the average price to the fishermen in 1922 was \$11.96 per cwt., while this year the average price was \$9.48. This fishery also, so far as the shipments to the United States points are concerned, has to meet a duty of 2 cents per pound, which if added to this year's price would bring the price per cwt. to the fishermen nearly equal to that of 1922.

SMELTS

This fishery shows a decrease in quantity of 19,578 cwts. as compared with the previous year, but shows an increase in value of \$21,211. The prevailing price for smelts during the earlier part of the year was exceedingly high and during December they also ran quite high. I am of the opinion that the prices prevailing for this year are perhaps the highest in the history of the fishery, the average price for 1923 being 11 cents per pound, while that of 1922 was 7.21 cents per pound.

LOBSTERS

The catch shows an increase of 5,499 cwts. The early season showed an increase in every district, excepting that of Miscou and Shippegan islands, and a small section of Overseer Arsenault's district at Green point. The outlook at the beginning of the season for canned lobsters was very good but as the season went on prices dropped materially and went as low as \$18 per case, as compared with \$26 at the opening of the season. During the late season, in view of the fact that the price of canned lobsters had fallen off to such an extent, a much larger quantity of lobsters were shipped alive to the United

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States markets. Unless a prohibitive duty is put on by the United States doubtless we will see a greater quantity of lobsters shipped alive as years go on. The shippers have given the matter considerable study and are now much better prepared to take care of them and pack them so that they will arrive in good condition in United States markets. The prices prevailing to the fishermen were very well maintained throughout the whole season.

OYSTERS

This fishery shows a large increase as compared with 1922. 14,574 barrels, value \$67,123, as compared with 10,708 barrels, value \$53,447, for the year 1922. During the fishing season the weather was exceptionally fine, thus enabling the fishermen to go on the beds practically every day. A fairly ready market was found with good prices prevailing to the fishermen.

SHAD

This fishery shows an increase of about six and one-half times that of the previous year, 1,394 cwts. for 1923 as compared with 202 cwts. for 1922. Fishermen report that they have never seen shad so plentiful for many years.

Reviewing the whole year's operations I submit they have been very satisfactory. Losses occurred to the fishermen, particularly to the lobster fishermen, during the storm of October 1. The storm was very heavy in the vicinity of Point du Chene, doing considerable damage to the wharves and buildings situated on the wharves. One firm estimates their loss at \$15,000.

At Richibucto, I am pleased to report that a new freezer 150 feet by 40 feet with a correspondingly large ice house of 60 feet by 80 feet has been erected during the latter part of the year by the Messrs. A. and R. Loggie Company, Limited. Since the disastrous fire of 1921 this town has been without an up-to-date freezer and it is very encouraging that this firm have sufficient faith in the business to re-establish at this point.

During the year patrol "C" did some prospecting with a view to ascertaining to what extent scallops could be procured in the waters surrounding Shippegan and Miscou islands and in the Caraquet district. In the latter district the evidence produced was very satisfactory, and in discussing the matter with one of the fish merchants at Caraquet during the latter part of the year he felt that the prospects as shown by the work of the patrol "C" justifies an entrance into the business and purposes, during the season of 1924, to carry on the fishing. It is the intention to have the overseer do more prospecting in this district, and if the evidence procured corresponds with that procured by patrol "C" I would hope to see some important developments in this fishery.

REPORT OF INSPECTOR H. E. HARRISON, INLAND FISHERIES OF NEW BRUNSWICK FOR 1923

The Inland District of New Brunswick comprises the counties of Kings' Queens, Sunbury, York, Carleton, Victoria and Madawaska.

The winter fisheries of this district do not amount to a great deal, even under favourable conditions, and the first three months of 1923 were exceedingly unfavourable for the few fishermen who attempted to follow winter fishing, an excessive amount of snow and bitterly cold weather prevailing during that time.

ALEWIVES

	Cwt.	Value caught	Value marketed
1922.....	998	\$ 2,495	\$ 2,933
1923.....	875	2,188	2,188

The earliest spring fishing, after the rivers and lakes become free of ice, is the alewife fishery, formerly carried on very extensively by professional fishermen and farmers in all of the waters of the St. John river system between St. John and Fredericton, and, to some extent in the St. John river well up to the Grand falls by farmers mostly who could spare the time, or had sufficient help in their homes to spend two or three weeks operating alewife nets and shipping the fish to St. John. A very great change has taken place during recent years and the spring runs of alewives during recent years have not been good.

	BASS	Cwts.	Value
1922.....		6	\$ 90
1923.....		17	255

The sea-bass fishery is of little importance, with the exception of two or three years together, long periods apart. For some reason or other these periods do occur, and large quantities of sea bass are taken in some of the lower tributaries of the St. John river, more particularly in Belleisle bay, Kings county. A considerable number of very large sea bass ascend the St. John river to a distance of one hundred miles north of St. John harbour during the summer, and an occasional one is taken in the salmon nets along the river, but no one is permitted to have nets set for them during that time.

	PICKEREL	Cwt.	Value
1922.....		242	\$ 2,420
1923.....		1,635	16,350

A very remarkable showing is made in this fishery for 1923—nearly 700 per cent increase over that of 1922. I am unable to give any specific reason for this condition, other than that pickerel appeared to be much more plentiful.

	SALMON	Cwt.	Value
1922.....		424	\$ 9,752
1923.....		355	8,165

Compared with 1922, the salmon fishery shows a decreased catch of 69 cwts., and the catch of 1922 showed a decrease of 151 cwts. compared with the 1921 catch, but the 1922 and the 1920 catches were practically the same. Regarding the 1923 catch, I was not at all surprised that the catch was not larger, having kept fairly well in touch with conditions throughout the season, and I was rather surprised to find that that amount had been taken during the fishing season. In the spring of 1923 we had one of the greatest spring floods known in the history of the St. John river valley, consequently, the salmon fishery particularly on the lower part of the river, was not good during the early part of the season. Then, because of an almost rainless season, the river ran very low and this again affected the lower St. John more than the upper parts. As is generally known, all salmon fishery nets—both tidal and non-tidal—in these waters are set from the shores, or banks, of the river and they extend out a very short distance, while much of the river is very wide, consequently, when the water is low salmon keep to the deeper parts and escape the nets to a great extent. Kings and York counties are the two large salmon producing sub-districts, but the York county district was not so materially affected.

It is unhesitatingly conceded by men whose work is on the water that there are far more salmon in the St. John river during recent years than there were twenty-five or thirty years ago.

	SHAD	Cwt.	Value
1922.....		1,224	\$ 7,344
1923.....		792	4,752

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The only anxiety I have regarding the fisheries of this district is in connection with this fishery. Notwithstanding the fact that the matter of our supply of shad, and the future of the fishery, were given very serious consideration during the time that the general fishery regulations were under consideration (1921), and the further fact that the 1922 regulations curtailed to a very large extent the operations of the fishermen, the fishery appears to be on a decline again, unfortunately, as the shad is one of our finest fishes.

STURGEON

	Cwt.	Value
1922.....	111	\$ 2,442
1923.....	100	2,000

While the sturgeon fishery is not productive of a large amount in hundred weights, it is at present the fourth in value in this district. This is because of the apparent high appreciation of the flesh of this fish on the New York market. The 1923 season was about an average one. While a large proportion of sturgeon taken were comparatively small fish—40 to 50 pounds weight each—some very large fish were taken.

The total marketed value of the commercial fish in this district during the last two years is as follows:—

Year	Value
1922.....	\$ 25,356
1923.....	33,924

MATERIALS

	Value
1922.....	\$ 21,644
1923.....	16,845

DOMESTIC FISHERIES

	Cwts.	Value
1922.....	467	\$ 8,819
1923.....	426	7,325

There was a considerable decrease in the quantity of salmon taken by anglers, compared with the amount so taken during 1922. Anglers on the St. John, Tobique, and part of the Southwest Miramichi rivers had a very satisfactory season, but the upper waters of the latter river, in Carleton county, fell off very badly from 116 cwts. in 1922 to 24 cwts. in 1923.

This condition was, to a considerable extent, caused by the unfavourable water conditions. After the spring freshet the weather was dry and warm and the upper waters of the Miramichi river evaporated and ran off until it was difficult to run even a light log canoe in many places, and this lasted for several weeks, consequently, salmon found it difficult to reach the upper spawning areas of this water, and very large numbers did not do so, but remained in the deeper water and spawned some twenty or more miles below.

The regulations (authorized in 1922) allowing limited net fishing in a goodly portion of the Miramichi river were very well observed during that season, and, in addition, there was a very heavy freshet in that district during the latter part of June and early July, 1922, so that all obstructions were removed and tens of thousands of salmon and grilse found no difficulties obstructing their way to the upper water of the river, and the result was very excellent angling during 1922.

The Tobique river did not produce quite as much salmon in 1923 as it did in 1922. So far as I can gather, this was not because of weakness in the protective service on either the St. John or Tobique rivers. The riparian owners, and the lessees of the fishing waters of the Tobique river advise me that there

were sufficient numbers of salmon in the river, and that from early summer, but the water was low and the weather was bright and warm during much of the season, and fish simply would not rise to the fly.

The experience of salmon anglers in the vicinity of this place (Fredericton) was very remarkable during 1923. At a pool in the St. John river, within five miles of my office, over four hundred salmon and grilse were taken by anglers during the season, as compared with less than one hundred in 1922. The water was fairly low during a good portion of the season, as it was in 1922, and the fish appeared to stop at this place to be captured. The guardian who was stationed at this place during the summer of 1923 deserves praise for his efficiency and faithfulness in preventing illegal net fishermen operating.

Reports submitted by the sub-district officers covering their several districts indicate a slight betterment in the trout fishing, compared with the previous season. The factor of weather and water conditions enter into this class of sport fishing as well as that of salmon fishing by anglers, so that it is difficult to compare one year with another. I tried to keep in touch with conditions during the season, and reports coming to me were that trout fishing was excellent in some streams and lakes, and not good at other places.

SEARCHING FOR PARENT TROUT WATERS

Some efforts were made by my officers and myself during the season to locate areas where parent trout gather to plant their spawn, in accordance with instructions from the department. While no very great success attended our efforts, I think we got some information that, if followed up, may be of value.

On one section of the Miramichi river and a tributary, one very likely place was located and a few fairly large trout (16-inch fish) were taken. We ate these fish, but when dressing them we found that a large percentage were barren, containing neither eggs nor milt. These were sea trout and well up the Miramichi river.

SUB-DISTRICT OFFICERS

The sub-district officers in my district have been diligent, and have done all in their power to prevent infractions of the fishery laws, and have had a good degree of success, I am sure, and, notwithstanding the goodly quantities of fish taken from these waters—both harbour and inland—with the exception of the shad fishery, which I am anxious over, the fisheries generally are holding their own, and in some instances more than holding their own.

The matter of the pollution of the waters in this district is not now a serious matter. Time was when conditions were anything but good. The matter of the mill men using the rivers, lakes and streams as a means of getting rid of the waste from their mills was a practice of long standing, in fact, from the time of the earliest settlement of the lands, and continued so for a number of years after my appointment, but by a gradual process of education matters were considerably mended, and when the reorganization was completed in 1918 the newly selected local officers found a fairly good foundation laid, and with their assistance we went to work in a united manner and at the present time every man operating a mill knows just what to expect if he attempts to revert to the former method of disposing of his mill waste, and I assure you he is not disappointed in his expectations when it is possible for us to secure any evidence of the infraction. He would very quickly revert to the old method if it were not for the constant watchfulness on the part of the overseers. During 1923 there were fourteen evidences of infractions of this regulation, out of hundreds of mills in my district, and fourteen prosecutions followed, mostly for minor offences, eight first and six second offence cases and convictions were made in each case.

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A modern concrete fishway was constructed in the dam owned by the Nashwaak Pulp and Paper Company on the Nashwaak river at the town of Marysville, York county, during the autumn of 1923. This was built in place of a wooden fishway (on the opposite side of the river) which had been carried away during the spring freshet of 1923. The expense of the new pass was borne jointly by the department and the Nashwaak Pulp and Paper Company. It was not completed until late autumn, therefore, the large number of salmon which ascended that river about the first of October were unable to pass beyond the dam. The fishway appears to be a substantial and well built affair, and I think it is now in the right location for salmon to use, which was not the case with the former pass. Salmon do not ascend the Nashwaak river (with the exception of only an odd fish) every year, and very few ascend that river before autumn during any season. Practically none ascended during 1922. Large numbers did so (to the dam) in 1921 and 1923. The water conditions appear to be the controlling factor. While the river was very low during 1922 and 1923, in the latter year about the 1st of October, a considerable quantity of lumber (logs) was brought down the river by flushing with water held at the upper parts of the river, each day. As soon as this work began, salmon began to ascend the river, and it is the opinion of your department's engineer and others, that the flushing (fresh water being let out, or forced out) each day attracted the salmon. A heavy rain in the Nashwaak valley in the autumn has the same effect and then salmon will ascend the river.

Prosecutions for all offences during 1923 numbered twenty-six, as against fifty-three in 1922. Confiscations numbered twenty-six, as against thirty-five during 1922, and prosecutions followed in every instance where evidence connecting any person or persons with the offence could be established. Seizures consisted mostly of salmon nets, with a few shad and whitefish nets. All illegal or valueless-to-sell materials were destroyed. Legal materials that could be, were sold. Some nets are still held and it is expected that these will be sold when fishing opens up again in the spring of 1924.

Moneys collected in the way of fines during the year amounted to the sum of \$613.50. In addition, fines to the amount of \$330 were imposed, and the penalties suspended pending good behaviour on the part of the offenders.

FISHERY LICENSES AND PERMITS

The following licenses and permits were issued by me during the calendar year 1923:—

	1923	1922
Salmon fishery licenses.....	105	112
Salmon net fishing permits (nontidal).....	129	123
Shad gill-net or drift-net licenses.....	219	254
Bass fishery licenses.....	15	18
Sturgeon fishery licenses.....	11	9
Smelt gill-net licenses.....	1	1
Whitefish fishery licenses.....	Nil	10

REPORT OF INSPECTOR S. T. GALLANT, PROVINCE OF PRINCE EDWARD ISLAND AND MAGDALEN ISLANDS, FOR 1923

Owing to unusual weather conditions the ice did not leave the shores until well on in May; consequently lobster fishing did not become general until May 18. Fine weather followed and a normal catch was obtained, with the exception of that part of the coast from Nail Pond to Victoria where the catch was one-third less than that of last year. There was no loss of gear. The fishermen received good prices, especially in Prince County where a large portion of the catch was sold in the shell and fancy prices realized. On the whole the season might well be termed a successful one.

In 1923, in comparison with 1922, there was an increase of ten (10) canneries, with an increase of 76,189 traps. As a result of the decrease in the market value of canned lobsters I do not anticipate that this fishery will be carried on to the same extent in the season 1924.

Spring herring fishing was good yielding an increase of 13,897 cwt. The canneries, therefore, were well supplied with bait during the entire season.

The codfish industry suffered a decrease of 4,202 cwt. due, no doubt, to the low prices offered at the opening of the season. A large number of fishermen left the Province to secure more lucrative employment elsewhere. The fish were very plentiful all summer and towards the latter part of the season good prices were realized, so that those who followed up this fishery were well paid for their labour.

There was an increase of 32 cwt. in the haddock catch and a decrease of 4,772 cwt. in hake and cusk.

Although spring mackerel were plentiful the fishermen did not fish to any extent on account of the low prices offered in the American Market and the high cost of transportation; the duty, too, was quite a factor in discouraging fishermen from shipping to the above-mentioned market. Quite a few mackerel were caught with hook and line in Queens county, and good prices were obtained for same.

There was a decrease of 1,176 barrels of oysters this year, due to the fact that there were 79 fishermen less fishing this season. The buyers were very particular in purchasing only full-sized oysters; consequently the demand was good throughout the season and fancy prices were realized. East and West rivers, and tributaries, also Vernor, Seal and Orwell rivers are well stocked with young oysters and we are looking forward to a good catch next year. When going over the oyster beds in Richmond bay, one-, two-, and three-year-old oysters were examined and found in a healthy condition, but the beds are so badly silted that the spat cannot catch and before these beds will become productive, they will have to be cleaned. It is our intention next summer, with the help of a few local men, to clean part of a bed and deposit two or three barrels of oysters on same in order to ascertain whether or not the blight still exists. This, I think, is a good move, as the department would scarcely be justified in spending money cleaning the beds until it was a positive fact that the oysters would not contract the disease which has been prevalent in the rivers of Prince County for the last seven or eight years.

There was an increase of 15 cwt. in the catch of salmon, Morell, Kings county, being the only place where this fishery was carried on. This increase is due to the fact that the fishing season was extended from the 15th to the 31st August. It is expected that there will be further development in this fishery in the near future as salmon were quite plentiful after August 15 in at least a dozen of the streams. Alberton, New London, and Richmond bays are well suited for salmon fishing. The fishermen at Morell received from 20 to 25 cents per pound for their catch last season and this should be an inducement for others to engage in this valuable and profitable fishery. For fishing at Morell three nets of 20 fathoms each are used, a pound is made of one net, while the other two are used as leaders; the total cost of these nets is about \$75, but, in view of the great demand for salmon and the high prices paid for same, this should offer no difficulty to those engaged in this fishery. I, therefore, anticipate considerable development in this industry within the next two years. A few salmon were caught by angling but there is no means of ascertaining the exact number caught.

Smelt fishing was good; the fish were large especially those caught with gill-nets. There was an excellent demand for them, and those engaged in this

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fishery were well paid for their time and labour. Bag-net fishing was delayed as the ice did not make in the rivers until the last days of December. Heavy catches are reported for the first two weeks of January from all parts of the province.

FISHERIES PROTECTION SERVICE

I am pleased to report that there was very little illegal lobster fishing this season. The new system of protection inaugurated last spring, that of long-term guardians patrolling the shore from West Point to Richmond bay, afforded splendid results, and, if the same system is employed for another year or more, there is no doubt that illegal lobster fishing in this Province will be a thing of the past.

FISHERIES PROTECTION SERVICE BY PATROL BOAT "RICHMOND"

The patrol *Richmond* was in charge of Captain Thomas Baglole and Assistant Fred. McKinnon, and began her patrolling duties on July 12 after being made ready for sea she continued patrolling until December 14, when she was laid up in her winter quarters at Ellis river.

The following seizures of lobster gear were made:—

Year	Rope	Traps	Crates	Anchors
1923.....	1,400 fath.	192	2	7
1922.....	2,900 "	688	..	..

It will be noticed that there is a considerable decrease in the amount of gear seized which may be attributed to the fact that the patrol *Richmond* rendered most efficient service, successfully frustrating at the outset any attempt made at illegal fishing. I may safely say that so long as Captain Baglole and his assistant are in charge of the above-mentioned patrol there will be very little illegal fishing carried on in Richmond bay.

MAGDALEN ISLANDS

The lobster fishing season opened on May 1 but did not become general until May 24, as the ice did not leave the shores until around May 20. A period of fine weather followed resulting in an increase of 3,723 cwt. over last year's catch.

By reason of the improved sanitary conditions and the up-to-date equipment installed the canneries in the Magdalen islands may well be numbered among the best in the Maritime Provinces. Several new canneries have been built and equipped with the most modern conveniences, and the goods put up by the Magdalen islands packers are of a highly satisfactory quality.

There is an increase of 4,266 cwt. in the catch of cod to report. The catch was quite satisfactory to those engaged in the fishery, there being an exodus of some 125 fishermen from the islands immediately after lobster fishing closed.

Herring, as usual were plentiful but as there was very little demand for them we have to report a decrease of 20,374 cwt.

There was very little demand for mackerel, although they were plentiful in June, and there was consequently a decrease in the catch of 13,419 cwt. The bulk of the catch was split and salted, and the quality was far superior to that of last year.

I have to report a decrease of 555 barrels in the catch of clams.

TRANSPORTATION

It is pleasing to note that a better boat will be placed on the Pictou-Souris route this season. This no doubt, will improve transportation facilities and be an encouragement to the fishermen to engage in the various fisheries on a still larger scale.

HARBOUR FACILITIES

On the north side of the islands, where the best codfishing grounds are located, there are no harbours which afford shelter to the fishing boats. It is estimated that some 2,000 quintal more codfish might have been landed at Etang du Nord last year had there been harbour accommodation at that point.

REPORT OF J. B. SKAPTASON, INSPECTOR OF FISHERIES, PROVINCE OF MANITOBA, FOR THE YEAR 1923

In a general way the year just passed may be considered reasonably successful for both fishermen and dealers. Practically the only exception is that of the summer whitefish operation on Lake Winnipeg from June 1 to August 15, which was a loss to both fishermen and companies operating. The only other variety of fish to show a decrease in production is the winter catch of tullibee. This, however, was very largely compensated for by the much higher prices that obtained than the previous year. All other varieties show a marked increase, and while these increases do not make up for the decrease in whitefish and tullibee, rather leaving the actual production for 1923 over two million pounds short of 1922, the amount realized by fishermen is shown to be nearly eighty-two thousand dollars greater, and the actual market value one hundred and eleven thousand dollars more for the catch of 1923 than that of 1922.

A very definite and valuable increase is indicated in sturgeon fishing, which is fully double that of the previous year. The increase is only partially accounted for by the greater number of licenses issued and men fishing, 183 as against 137 in 1922, or about 25 per cent more, while the increased production is fully 50 per cent greater. The demand for sturgeon was very good, creating a top price, giving each licensee a much higher average, or \$340 per license in 1923 as against \$162 in 1922. This fishing is largely carried on by Indians in a desultory sort of way with small and inefficient outfits, during two or three months of the summer, the results obtained by each man may therefore be considered reasonably lucrative.

Special attention is given all sturgeon fishing grounds in this inspectorate, with a view to watching for possible depletion. It is gratifying to be able to report, all these fisheries appear to be well supporting their various limits.

The Pas, Sub-District, comprising all waters north of 53 parallel excepting the northern parts of lakes Winnipeg and Winnipegosis, shows no summer fishing during 1923, excepting for sturgeon. This was carried on to a marked degree more extensively than in late previous years, with much increased individual results. The increasing of the limit on the Saskatchewan river and its expansions from 50,000 to 65,000 pounds, appear to me fully justified.

Winter fishing in these waters was carried on in a slightly lesser degree than previous year, the production, however, is slightly greater than that of the preceding winter. The reason for the light winter operation is accounted for by the very high cost of freighting the fish to railhead, as teams, and fodder for them, have to be shipped into the district.

Lake Winnipeg.—There has been an unaccountable falling off in the production of whitefish during the past two summer seasons on lake Winnipeg. The limit for the season which extends from June 1 to August 15 is 3,000,000 pounds. The following is the catch for the past three seasons:—

1921
2,927,098 lbs.

1922
2,472,470 lbs.

1923
1,455,404 lbs.

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It is not generally considered there need be any fear entertained, that this is an indication of depletion, rather the fish failed to school and kept scattered at various depths of water, making it more difficult for the fishermen to locate them. During the fall pickerel fishing, carried on in that portion of the lake lying south of Black Bear island, there has been a very noticeable increase in the whitefish catch all along the line, some places at times reporting from 10 per cent to 20 per cent whitefish as against pickerel, where a few years ago whitefish would hardly be seen during the whole season. This is generally ascribed to the Gull Harbour hatchery which is situated in the centre of this area.

Sturgeon fishing on this lake was carried on more extensively than in late previous years, and more than doubling the production of 1922. Sturgeon appears to be keeping up fairly well with the limited fishing carried on in the lake. A small attempt was made during the past summer at hatching of sturgeon eggs in Playgreen lake, no success was met with, in fact owing to the special adverse local conditions it was not found possible to obtain the parent fish in proper condition. The officer who had charge of this experiment, Mr. C. P. Paulson, Superintendent of the Gull Harbour hatchery, is confident the experience gained last spring will materially improve chances for success another year, and it is contemplated to make another try this coming summer at Berens river.

Lake Winnipegosis.—This lake enjoyed a normal season and a fair output. No summer fishing for whitefish was carried on, but during the fall season for pickerel, 166,000 pounds of whitefish was produced on what is not generally considered whitefish grounds. There is a feeling amongst the fishermen that whitefish is improving in the lake.

Last spring (1923) the department in response to a petition of fishermen, made a decided attempt at reducing to some extent the suckers or mullets in lake Winnipegosis. These fish have become a serious menace on the whitefish spawning grounds of the lake. The work was carried on under the direction of S. J. Walker, Inspector of Hatcheries. Three of the principal streams in the south end of the lake up which these fish run in spawning season, were blocked and all the fish taken. An offer of the department to transfer the fish to lakes on the Prairies that had no fish life was well received, and a large number of these fish were so disposed of throughout Manitoba and Saskatchewan.

Lake Manitoba.—The green fish industry is much on the increase throughout the west, all lakes where railway facilities are such as to allow of the fish being shipped fresh become very popular with fishermen, who are inclined to over-crowding in these waters. Lake Manitoba this present winter season is supporting practically 800 fishermen, or almost half the winter fishermen of the province, about 75 per cent of that number are operating in the comparative small area south of the narrows on the lake. The increase in fishermen on this lake as against winter 1922-23 is about 30 per cent. This is a comparatively small lake with no great depth of water, and it is unthinkable that it can indefinitely support the tremendous drain it is subjected to. It is, therefore, felt the now proposed hatchery for this lake cannot be put into operation a day too soon.

We had a visit during the past summer from Mr. Wm. A. Found, Director of Fisheries Service. It was the occasion of a get-together movement amongst fishermen as well as operators, and several very representative meetings were held by Mr. Found, and those directly interested in the industry. This was also an opportunity used by the Director of Fisheries to make a most thorough inspection of the various fisheries on lake Winnipeg, as well as the hatchery conditions on the lake.

All the officers of the district have shown commendable diligence in the performance of their duties.

During the year there were twenty-three prosecutions under the Fishery Regulations in the province, as follows:—

Fishing without license.....	6
“ in closed season.....	3
“ with illegal mesh nets.....	3
“ in weekly closed time.....	2
“ by means of explosives.....	3
Possession of fish closed season.....	6

REPORT OF G. C. McDONALD, INSPECTOR OF FISHERIES, PROVINCE
OF SASKATCHEWAN, FOR 1923

The total catch for the year shows an increase of 5,751 cwts. over the previous year. The catch during the summer season has increased 2,239 cwts., and the catch during the winter season has increased 3,512 cwts. This increase of both summer and winter catches is due to more fishermen operating in almost every district in the province, there being an increase of 165 fisherman licenses issued during the year. The winter fishing season was delayed from ten days to two weeks during December on account of the unusually mild weather, resulting in there not being sufficient ice on the lakes to allow the fishermen to operate.

There is an increase shown in the value to fishermen of \$30,608, and an increase in the market value of \$41,306 due to larger production. The price obtained by the fisherman as well as the market value was about the same as during the previous year.

There has been an increase of 165 fisherman commercial licenses issued during the year. This is probably due to the low price obtained by the farmers for their produce as well as the increased demand for fish.

There are no waters showing any immediate signs of being depleted that would require any special restrictions during the near future, except probably Dore lake and Okemasis lake. During the last few years Dore lake has accounted for the largest production of fish of any lake in the province, and if the number of licenses issued on this lake continues to increase it might be found necessary to place a limit on the total production. This matter will receive attention at the close of the present winter fishing season, when more information will be available. Okemasis lake has been fished considerably during both the summer and winter seasons for a number of years, on account of its close proximity to the railroad, and if this strain continues on the lake it might be found necessary in the near future to place a limit on it also, and owing to its being so conveniently near the railroad I might suggest the placing of a generous quantity of whitefish spawn in it from the hatchery.

During the year there were seventy-six prosecutions and a conviction secured in every case, resulting in fines amounting to \$387.50, being imposed with additional costs on the defendants of \$265.60, according to the following:—

Fishing with nets without a license.....	8
Fishing during close season.....	32
Fishing with illegal apparatus.....	28
Illegal possession of fish.....	5
Selling fish taken under free permit.....	1
Damming of streams.....	2
	—
	76

There were sixty-eight confiscations and forty-four sales of confiscated articles made during the year.

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Of the twenty dams reported during the year five of these were repaired and two new fishladders built in the Carrot river and Stoney creek dams. All fishladders in dams in the province are now reported to be in good condition.

Under equipment there is an increase shown for the year of 392 gill-nets due to more fishermen operating. There is also an increase shown of six gas boats, ten rowboats, two ice-houses, and three piers all on Turtle and Jackfish lakes and used in connection with the summer's operations. There is a decrease of six smoke-houses on Jackfish, Turtle and Dore lakes.

Reports show that during the year there was an increase of 1,803 cwts. of fish, with an increased value of \$9,938, taken under domestic license. This is due to there being an increase of 179 domestic licenses issued during the year.

There is also an increase shown of 4,836 cwts. of fish taken by anglers with an increased value of \$40,700. This is reported due to there being an estimated increase of 4,022 anglers.

REPORT OF R. T. RODD, INSPECTOR OF FISHERIES, PROVINCE OF ALBERTA, FOR 1923

A total amount of 51,862 cwts. of all kinds of fish were caught in the district of northern Alberta during the summer and winter seasons of 1923, an increase over the year 1922 of 6,173 cwts. Increased catches may be noticed in both trout and whitefish as well as the coarser varieties. The increase in trout is found chiefly in the lac la Biche district. An increase of about 2,000 cwts. of whitefish is accounted for by the following lakes: Primrose lake (Cold lake district), where a larger number of men operated, and the fishing was exceptionally good. Pigeon lake, also chiefly due to more fishermen operating. This lake is in a particularly healthy state. Moose lake and Athabasca lake district. The fishing in Fawcett lake and Calling lake was excellent. The above lakes were operated during the winter seasons. In the summer increases are noted in lac Ste. Anne, Wabamun, lac la Biche and Cold lake districts. It is most gratifying to note that Wabamun and lac Ste. Anne are again showing an increase in catch, and this can be accounted for by the heavy rains of the summer of 1923, which helped to raise the abnormally low waters of these two lakes. An increase will also be seen for Cold lake, which was fished for the first time on a commercial scale during the summer months.

A decrease in the catch of Lesser Slave lake is noted during the summer of 1923, where the maximum amount of 15,000 cwts. of whitefish fell short by 1,460 cwts. The maximum amount could easily have been obtained were it not for the fact that operations were suspended for a week at the opening of the season, owing to the phenomenal catch of the first week, which taxed the shipping facilities to the limit. After the first two weeks or so the fish scattered over the lake and the fishing was very poor. I recommend that the catch for this lake be restricted to a maximum of 10,000 cwts. instead of the present quantity.

During the winter it was also noticed that the catch of whitefish at Buffalo lake showed a large decrease, which can be accounted for through the serious delay in the commencement of fishing in December, 1923, owing to the exceptionally mild weather and lack of snow. Ice did not form in sufficient thickness to allow of fishing until the third week in December, and then only with great danger and difficulty. Indeed several of the companies operating lost horses through the ice breaking whilst hauling fish to the shore. Reports indicate, however, that in the latter part of the season 1923-24 the fishing at this lake was very good, and from the account received in this office there is no reason to believe that this lake is in anything but a fine condition. A decrease

is noticed in the Cold lake district in the catch of trout, although there were a greater number of fishermen fishing. This lake is considered to be in a depleted condition, and the department has now placed a limit on the amount of fish to be taken. A decrease in the Trout lake district resulted through no operations around lac la Biche and a smaller catch on Winifred and Christena lakes, not as many men operating on these lakes as formerly.

MARKETS

The markets during the year 1923 were exceptionally good, and keen competition between the various buyers was evinced, with a consequence that the fishermen obtained excellent prices. As high as 9 cents per pound was obtained in some cases for whitefish. Further an excellent market is now assured for lake trout, formerly difficult to dispose of in large quantities.

TRANSPORTATION

Transportation facilities show still more improvement both by the Edmonton and Dunvegan Railway and Alberta and Great Waterways Railway. During the summer two carloads of fish were upset on the former railway, but such was the assistance given that within twenty-four hours every pound of fish was on its way again to Chicago, and not a pound was lost. The latter railway proposes to assist in the breaking of a new trail to Buffalo lake on a lower elevation, that will decrease the now heavy overhead expenses to very appreciable degree, and will prevent the loss of fish on the trail.

EQUIPMENT

Further improvement is shown in the equipment, a larger number of gasoline boats being used at Lesser Slave lake, as well as deeper mesh nets. More attention is now being shown towards the cleaning and marketing of fish in good condition.

OBSERVANCE OF THE REGULATIONS AND PROSECUTIONS

There were twenty-six prosecutions of which two were appealed, and the court sustained the appeal with the result that the confiscated articles were ordered returned to the parties prosecuted by the department. Saw-mills have been warned regarding the pollution of streams and a great deal of attention has been shown this class of offender. The following is a list of offences:—

- 3 fishing without a license.
- 2 leaving remains, and offal on the ice.
- 1 fishing without domestic license.
- 5 fishing without angling permit.
- 5 fishing with apparatus other than gill-nets, etc., contrary to section 27.
- 1 killing under the size limit.
- 4 fishing in close season.
- 2 fishing with excess of net.
- 2 fishing with mesh less than 5½ inches for whitefish.
- 1 possession of whitefish in close season.

FISHWAY AND DAMS

These have been carefully inspected from time to time and with the exception of the Eau Clair dam at Calgary they have been reported as being in good condition. A fishway was ordered to be built on the Pembina, where lumbering operations prevented fish passing to their breeding grounds, and this is being attended to this spring.

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ANGLING

Owing to the great amount of rain in the southern part of Alberta, angling was not as successful as in years past, although the statistics show that a greater amount of fish was taken, this has been made possible through a closer check on the anglers and their catches. Through the roads being impassable for most of the season the headwaters of the streams have had a rest from the heavy fishing of the past dry years, and this will I think prove of the greatest benefit in the conservation of fish. Overseer Holmes has reported some improvement through the restocking of the lakes and streams in his district by the Banff hatchery.

In conclusion I might state that there are many inquiries regarding the contemplated operations at lake Athabasca during the coming season, and I am confident that in the very near future it will be possible to report the starting of fishing in this lake again. Several new lakes were explored, and one new lake fished commercially—Island lake—near Buffalo lake. This lake, however, is so covered with islands that the fish were not discovered this season in paying quantities. Next year will see one of the companies operating at several new lakes in the vicinity of Buffalo lake, which are said to contain trout weighing in the neighbourhood of 50 and 60 pounds, and also containing unlimited quantities of whitefish.

Inquiries have also been received from a firm in the East as to possibility of establishing a fish oil plant in Alberta, and one for the production of fish essence. At the present time an endeavour is being made to place smoked Alberta whitefish on the menu of the Canadian National Railway which may result in success along this line. Further, one of the companies operating in this province is experimenting along the lines of producing fish cakes canned and manufactured out of the coarser varieties.

REPORT OF CHIEF INSPECTOR MAJOR J. A. MOTHERWELL, WEST-
ERN FISHERIES DIVISION (BRITISH COLUMBIA) FOR 1923

SALMON

By reference to statement No. 1, which gives the pack of canned salmon in British Columbia from the year such operations started in the province, it will be observed that the pack for 1923 amounted to the satisfactory total of 1,341,677 cases, the fifth largest since 1876. Previous to 1902 the pack of varieties other than sockeye was negligible and the increase of the past thirteen years particularly has been accounted for by the quantity of the fall varieties canned.

In the Fraser river district the pack of sockeye amounted to 29,423 cases which is practically the same as that of the brood year of 1919. The total of all varieties amounted to 224,637 cases but the comparison of this total with that of previous years would not be enlightening owing to the fact that during 1923 a very considerable portion of the pack of chums particularly was obtained from the Vancouver island district and cannot be properly included with the pack taken from the runs to the Fraser river.

The pack of sockeye on Puget Sound and practically all of which is taken from the run proceeding to the Fraser river, amounted to 47,402 cases as against 64,346 cases in the brood year of 1919. The catch of pinks in the Fraser river district and the Puget Sound Area, and which is practically all taken from the runs proceeding to the Fraser and streams in the immediate vicinity, accounted for 539,494 cases compared with 412,891 cases in the brood year of 1921.

In connection with the run of pinks it is observed that the Americans in Puget sound this year took 475,849 cases compared with 63,645 packed by the Canadian operators in the Fraser River district, although the great percentage of the run is proceeding to the spawning areas on the Canadian side of the line. During the season the run while passing through American waters ran the gauntlet of numerous traps and purse-seines which captured such large quantities that in certain instances it was impossible to market the catch and it was lost.

Seines are not permitted on the Canadian side in the Fraser river area and the fishermen depend on gill-net operations entirely. For some reason or other what was left of the large run of pinks after passing through Puget sound waters remained outside of the Fraser river until close to spawning time and the biggest run in the river occurred during the weekly closed period and a very satisfactory proportion reached the spawning grounds. It would seem that even to a greater extent than in the case of the sockeye, the pinks are protected on the Canadian side largely for the benefit of American competitors.

The run of springs to the Fraser river was the poorest in many years. The run of cohoes was fair, but the supply of chums was extremely satisfactory.

In the Rivers and Smiths inlet districts, which have been combined in the statement of pack for purposes of more accuracy, it will be found that the pack of sockeye amounted to the very satisfactory total of 118,502 cases, the largest since 1920. It will be remembered that in 1919 the drag-seine at Quashella creek, Smiths inlet, after fishing a very short period, was taken out and no seines have been permitted in Smiths inlet area since. This has undoubtedly been a factor in the good pack of 1923. In addition to the satisfactory quantities caught an inspection of the spawning areas shows that a plentiful supply of parent salmon reached the spawning areas.

The average earnings of the gill-net fishermen during the few weeks of operations in this area amounted to approximately \$470 each, the high boat in Smiths inlet produced a net earning of \$1,633 for four weeks' fishing. This was operated by an independent white man. Weather conditions enter very largely into the gill-net fishing operations. In the rainy dark weather the salmon swim deep and a large portion pass under the nets, whereas on a bright sunny day they are to be found nearer the surface and become an easier prey to the nets. During the season 1923 the weather conditions were most favourable although owing to the unusually light fall of rain many of the small streams along the coast, until very late in the season, did not contain enough water to permit the salmon to ascend to the spawning grounds. This was particularly the case in districts fished by purse-seines and drag-seines and unusual precautions were necessary with a view to protecting the salmon waiting at the mouths of these stream.

In the Skeena river district the pack of sockeye amounted to 131,731 cases, the product of the runs of 1918 and 1919, the Skeena river sockeye being four and five years old fish. In view of the fact that the weekly closed season was 48 hours and that there was a net decrease of 191 in the number of gill-net boats fished on the river, the pack would appear to be a satisfactory one. The results of the extended closed period and the reduction in fishing equipment is reflected in a most gratifying way in the splendid quantities of parent fish on the spawning grounds. It will be observed from statement No. 5, that only in one year since 1911 has the 1923 pack of sockeye on the Skeena river been exceeded and only twice since 1877. The runs of the other varieties were satisfactory but the packs apart from the sockeye cannot be taken as representing the size of the run for the reason that while an effort is always made

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to capture as many sockeye as possible, the quantities of the other varieties taken depend entirely on the fluctuating markets.

In the Queen Charlotte islands there is a large run of pinks in the even numbered years and 1923 being an off year at that district the result is reflected in the total pack.

On the Naas river the comparatively good run of the previous season was not maintained, the quantity of sockeye packed amounting to only 17,821 cases compared with 28,259 cases in 1919 and 21,816 cases in 1918. The run of pinks was not so good as in the preceding year or in the brood year of 1921.

The quantity of salmon packed in the province during the past few years and the conditions of the spawning beds would appear to justify the statement that in British Columbia apart from the Fraser and Naas rivers, both of which are contiguous to American waters, there is no fear of depletion of the salmon runs and particularly in view of the existing fishery regulations and the efficacy of the patrol service coupled with the very satisfactory operations of the salmon hatcheries.

HALIBUT

With a total of 334,667 cwts. the landings of halibut at British Columbia ports has established a record during 1923. By reference to statement No. 9 it will be observed that of the total landings 203,666 cwts. were brought in by boats of American registry. A very large percentage of the total landings of the province passed through the port of Prince Rupert and over the Canadian Government Railway system to markets in Eastern Canada and the United States.

In anticipation that the proposed closed season for halibut fishing on the coast would come into effect during the year probably a greater effort than usual was made to fill the cold storage establishments but in spite of the fact that the new regulations did not come into force the market was sufficiently attractive to permit of the large stocks of frozen fish being disposed of.

In connection with the large catch by American boats as compared with that of Canadian vessels, it is interesting to note that during the unfavourable weather when it is impossible for the smaller Canadian boats to fish the most attractive banks off the coast of Alaska, the small American craft are able to continue operations inside the territorial waters of Alaska which results in their delivering a larger catch than the Canadian fishermen. Out of a total of 315 boats delivering halibut at Prince Rupert 210 were under American registry.

In addition to the catch being so large the prices obtained at Prince Rupert reached the highest point since the war. In October, 1923, the price of 23.1 cents per pound was paid for first grade for catches by American boats whereas during the war the highest point reached was 23 cents.

Unfortunately the treaty providing for a closed season for halibut fishing did not pass the American Senate as was expected and cannot come into force until the fall of 1924. Indications, however, would appear to justify the expectation that there will be no further delay.

HERRING

There was a good average run of herring during the year and this particularly applies to the west coast of Vancouver island where the largest operations have been conducted in recent years.

A very large proportion of the catch is dry salted and shipped to the Oriental market. During the year the prices obtained have been unusually attractive, at one time during the season reaching \$82 per ton C.I.F. China. It is interesting to note that the dry salting business is coming more and more into

the hands of the whites. Until fairly recently the Japanese have controlled the industry, the market being China. During the year the Canadian white brokers have handled a very large percentage of the product.

The value of herring products at the point of shipment is approximately as follows:—

One ton of raw herring equals	400 lbs. stock food worth.....	\$ 12 00
do	400 lbs. fertilizer worth.....	10 00
do	30 Standard gals oil worth.....	10 50
do	1,000 lbs. Dry Salted worth.....	20 00
do	1,000 lbs. Kippered worth.....	90 00
do	30 Cases Canned worth.....	195 00
do	6 bbls. Scotch cured worth.....	75 00
do	Halibut Bait worth.....	30 00

PILCHARDS

At certain seasons of the year on the west coast of Vancouver island pilchards appear in great numbers. During recent years considerable quantities have been canned but recently the market conditions have not been sufficiently attractive to permit of large quantities being put up. A contributory cause is the low price for which such excellent food as canned chum salmon can now be obtained.

WHALING

The whaling stations at Kyuquot, Rose Harbour, and Naden Harbour were operated during the year, the catch showing a considerable increase over the previous season. The number and species of whales taken is as follows:—

Species	Kyuquot	Rose Harbour	Naden Harbour	Total
Sperm.....	32	38	24	94
Sulphur.....	5	26	31	62
Fin.....	54	75	37	166
Hump.....	32	21	25	78
Sei.....	13	37	3	53
BN.....	2	—	—	2
Total.....	138	197	120	455

FUR SEALS

The Indians off the west coast of Vancouver island were particularly successful in fur sealing operations although a considerable number are taken in the vicinity of Hecate straits. A total of 2,979 were cleared through the Customs ports of the province.

DESTRUCTION OF SEA LIONS

As a result of the recommendation made by the Fisheries Commission of 1922 and also following suggestions contained in the report following the sea lion investigation of 1916, further efforts were made during the year looking to the reduction of these mammals found to be so numerous in the close vicinity of some of the principal salmon areas. The C.G.S. *Givenchy* left on the 18th of May for the Pearl and Virgin rocks in Queen Charlotte sound opposite Rivers inlet and Smiths inlet. Operations at these points are extremely difficult owing to the waters in the vicinity being uncharted and the whole area exposed to the sweep of the Pacific. This necessitated absolutely calm weather before approaching the rocks. The total number destroyed amounted to 1,885 including 1,231

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adults and 654 pups. In this work a Lewis gun, several .44 calibre rifles and clubs were used. Undoubtedly the slaughter of so many sea lions just before the valuable sockeye salmon were due to arrive greatly assisted the operations of the gill-net fishermen and numerous gill-netters expressed their delight and stated that their fishing operations were freer of interference from sea lions than they had been for a great many years and attributed these conditions to the sea lion hunt by the department.

PATROL SERVICE

The patrol fleet for the year consisted of the steam trawlers *Malespina* and *Givenchy*, the oil burning steamer *Marfish*, and nineteen gas boats all the property of the department, and in addition fifty chartered gasoline boats and one seaplane. The *Malaspina* logged 13,542 miles and the *Givenchy* 14,404 miles during the season. Fourteen of the gas boats owned by the department logged 93,010 miles, or an average of 6,643 miles each. Four of these gas boats remained on duty the full 12 months. The remainder, together with all the chartered boats were in commission for periods from one month to seven months. For the first three months of the year the C.G.S. *Thierval*, the property of the Department of National Defence, was also loaned to the Fisheries Department to assist in the patrol of the three mile limit. The *Givenchy* was, during the last two weeks in the year, engaged in life-saving duties on the west coast of Vancouver island with headquarters at Bamfield.

A seaplane with headquarters at Prince Rupert consumed sixty-nine flying hours in fisheries protection work and the results obtained were sufficiently encouraging to justify the expectation that the number of patrol boats can be reduced with certainly no decreased efficiency, but rather with the expectation of more efficient service. There are certain difficulties in connection with seaplane patrol which it is difficult to overcome. In discovering a violation at a considerable distance from a patrol boat or settlement very little can be done beyond taking the name and number of the operator and boat and report to the nearest patrol boat or fishery officer. In the less isolated areas, however, it is usually possible to obtain a patrol boat within a reasonable time to take charge of the offender and his boat. At night and during a fog the plane is of no use but on the other hand in the isolated districts the seining operations which require so much attention can be adequately looked after by the means of the plane. The moral effect on the fishermen is excellent as they never know at what time a patrolman may come upon them from the air.

In addition to assisting with the patrol service next season it is proposed to obtain aerial photographs of the more important spawning areas in District No. 2. An examination by the ordinary means results in the expenditure of considerable money, effort, and time, and in some cases after the difficult task of getting into the upper waters the area has been found of little use. By means of the aerial photographs it will be possible to decide whether it is necessary to send in officers for a more detailed examination. By means of the photographs any serious obstructions in streams would probably be discovered.

At the present time two new 60-foot patrol boats are being built for the department at the Government Dockyard at Prince Rupert. These are being powered with 60 horse-power Beardmore semi-Diesel engines. Undoubtedly the crude oil engine is far more economical and just as efficient as the gas engine. The new boats are expected to be ready early in the spring of 1924. One is to replace the expensive *Fispa* for use of the Inspector of District No. 3 and the other will be used in District No. 2. The *Fispa* has been disposed of to the Vancouver Harbour Board.

REGULATIONS

During the year there were eighty-five prosecutions and seventy-six convictions for violations of the Regulations. The fines and sales from seized fishing equipment amounted to \$3,174.95.

The observance of the Fishery Regulations showed a considerable improvement over previous seasons and this applies particularly to the northern districts where, by a careful reorganization of the patrol service, excellent results have been obtained.

The weekly closed period of forty-eight hours for salmon fishing and which extended from 6 a.m. Saturday of each week to 6 a.m. Monday, was, at the request of the fishermen and other operators in District No. 2, altered for that district to cover the period from Friday at 6 p.m. to Sunday at 6 p.m. This has the effect of permitting all the canning establishments with their large staffs to rest on Sundays and permit the fishermen to obtain the Sunday night's fishing.

REDUCTION IN ORIENTALS

The gradual elimination of the Oriental from the fisheries of the province is primarily for the purpose of providing greater encouragement to White men and Canadian Indians to take up fishing for a living. By reference to the very interesting statement No. 8 the results in connection with the salmon gill-net operations in the several areas will be observed. Extending over the whole province the increase in the number of whites was 9.5 per cent and in the case of Indians 7.4 per cent and in the case of Orientals a decrease of 40 per cent which was recommended by the 1922 Fisheries Commission. The total number of fishermen of all nationalities decreased 534 or 11.9 per cent. On the Fraser river there was an increase of 6.2 per cent in whites but a decrease of 20.6 per cent in the case of Indians. On the Skeena river the increase in whites was 11.9 per cent and 16.2 in Indians.

In the case of salmon trolling while the reduction in Oriental licenses was 25 per cent the increase in Indians was 13.9 per cent but there was a decrease in whites of 6.1 per cent. Out of 1,446 trolling licenses issued for the province 1,154 were issued for District No. 3, 579 for the east coast and 575 for the west coast of Vancouver island.

It is interesting to note that on the east coast the increase in whites amounted to 69.7 per cent and in the case of Indians 343.4 per cent but on the West Coast where operations are considerably more difficult and hazardous there was a decrease of 22.6 per cent in the case of whites and 14.1 per cent in the case of Indians in spite of the reduction of 25 per cent in Orientals.

Cod fishing by means of lines was not licensed prior to 1923 but for the purpose of including this method of fishing in the general reduction in the case of Orientals licenses were required of all nationalities. It is the intention during 1924 to include cod handline licenses in the general policy of a 40 per cent reduction in the case of Orientals.

Owing to the desirability of eliminating or greatly reducing the quantities of grayfish and the necessity for every encouragement to this end and which policy was recommended by the Fisheries Commission of 1922, there is no limitation to the number of grayfish licenses which may be issued to Orientals or other nationalities providing they are British subjects.

The policy of the elimination of the Oriental in salmon seining operations naturally resulted in the development of this class of fishing by whites. The experience has been that white seine crews can be just as efficient if not more so than the Oriental and this applies very largely to the Indian as well.

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ANGLING

It is becoming increasingly difficult to fill the requirements of the numerous applications for the stocking of the various lakes and streams with the several sporting varieties of fish. During the year ninety-nine applications were filled by means of Kamloops, Steelhead, Cutthroat, and Eastern Brook trout and Atlantic salmon. A total of 3,241,896 eyed eggs and fry were utilized for this purpose and results have been extremely satisfactory. Many lakes which in the past have never had many fish and others which have become depleted owing to excess of fishing have been stocked much to the satisfaction of a great many angling associations and individuals and much excellent angling will be provided within reasonable distance of the larger centres of population.

SCIENTIFIC INVESTIGATION

It is most gratifying to find that arrangements have been made by which the Fisheries of British Columbia are to receive more attention from the Biological Board with a view to investigating and advising on the numerous problems confronting the industry. The province of British Columbia has long felt the need of such action and although results cannot be expected to become apparent immediately, yet scientific investigation can be depended upon to in the near future show results making for a more intelligent understanding of fisheries problems by both those interested commercially as well as the staff of the Fisheries Department. It is hoped that conditions are being made sufficiently attractive to ensure the retaining permanently of desirable officers and instead of investigations being conducted intermittently there may be a continuity of observations by the same officers which will result in conclusions and solutions of great value to the industry.

BRITISH COLUMBIA FISHERIES COMMISSION, 1922

As a result of the recommendations made by the Commission of 1922 which investigated fisheries affairs in British Columbia, the following alterations were made in regulations and policy:—

(1) After the year 1923 gas boats will be permitted to be used anywhere in the province in salmon gill-net operations. These had previously been prohibited in District No. 2 and sail boats were provided by the canning companies.

(2) The number of fishing licenses issued to other than resident white British subjects and Canadian Indians was reduced by 40 per cent apart from salmon trolling licenses where the reduction was 25 per cent.

(3) The license fees and taxes were very materially reduced resulting in considerable satisfaction to the fishermen and operators generally but naturally reducing considerably the amount of revenue collected.

(4) The fishing boundary limits at the mouths of streams were altered to 400 yards from the mouths of streams. The power was left with the chief inspector for the province to move these further out if considered necessary.

(5) A reserve was arranged in the Cowichan bay area in order that the Fisheries at that point might be allowed to recover and that the several varieties of fish coming to the Cowichan river might receive protection.

(6) The regulation permitting of salmon fishing to commence on May 1 on certain portions of Vancouver island was altered to conform with the balance of the district.

(7) The weekly closed period for salmon fishing was made a uniform one of forty-eight hours.

(8) Departure bay was closed to all herring fishing by means of seines.

INDIANS

Previous to the year 1923 seining licenses have never been issued to Indians although these wards of the Government have been employed largely in the operations conducted with such fishing gear. The Indians have always felt that this was an unfair discrimination against them and the department decided during the year to grant them the same privileges in the way of seining licenses as are enjoyed by the whites. This privilege has been the cause of considerably increased good feeling on the part of the Indians.

Through the co-operation of the several officers of their department, deserving and needy Indians are being provided each year with fishing permits, which will permit them to take, without cost, a sufficient quantity of salmon to meet their requirements in the way of food during the winter season. Salmon so taken are not permitted to be sold.

INSPECTION OF SPAWNING AREAS

Just as far as it is practicable all salmon spawning areas were inspected while the parent fish were on the spawning beds. In this connection it is pointed out that owing to the fact that it is impossible under present conditions to employ the same men year after year for this work the reports received cannot be of as great comparative value as would be the case if the same officer year after year reported on the one area. In some of the most important districts, however, it has been possible to make satisfactory arrangements and the increased value of such information is obvious.

Naas River District.—The inspection of the Naas river area was undertaken about one week earlier than usual and the information obtained would appear to show that the supply of sockeye salmon on the spawning grounds was considerably less than in the fall of 1922 and with very little improvement over that of 1921. It will be remembered that there was a fair run of this variety to the Naas river in 1922 when the pack reached 31,277 cases against 17,821 in the year under review and 9,364 in 1921. A few sockeye were seen at the upper fall and there was a better showing at the lower fall and more were observed coming in as the inspecting officers were leaving.

The run of spring salmon was the best experienced since 1910.

The repairs to the fishway were made during July and at that time the engineer in charge of the work reports that as soon as the water was turned into the structure after the repairs were completed the salmon which were gathered at the base passed through with ease and the run appeared to be a fairly heavy one for a few days.

The report on the Bowser lake section of this watershed was again discouraging and although a small quantity of sockeye salmon was observed conditions would appear not to be suitable for any large run.

Skeena River Watershed.—The reports received demonstrate that again this watershed has been abundantly seeded with sockeye salmon. At Babine lake, which is the principal spawning area for the district, conditions were found to be most gratifying, the spawning beds in practically all the streams being heavily seeded. This condition also applies to Babine river and very satisfactory supplies of the spring and pink varieties were also found. It is only every other year that there is such a large run of pinks to the Skeena.

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It will be remembered that previous to the hatchery operations on the creek draining Morrison lake the supplies of eggs for hatching artificially had to be obtained from the different streams around the lake, but owing to fish cultural operations it is now unnecessary to go further than practically the hatchery door for obtaining more than the sufficient quantity of eggs to fill the hatching troughs to capacity. This is a good illustration of what can be done by the fish cultural methods being carried on by the department.

In the Lakelse lake area there was also a splendid supply of sockeye and pink salmon. A good run of sockeye has also been reported from the Kitsumkalem area.

Several cannery managers on the Skeena during the summer remarked on the good run of sockeye up the Oxtahl river and which they stated was undoubtedly due largely to the work of clearing the obstructions to the ascent of salmon and which work was done four years previous permitting the parent fish to reach the spawning grounds.

The run of spring salmon to the Skeena was the best experienced since 1910.

Central Division.—The streams on the mainland of this area which are fed by glaciers had a plentiful supply of water throughout the summer and the salmon were able to ascend to the spawning grounds but on the islands conditions are very different and frequent rain is necessary to keep the streams full. Unfortunately last summer was an unusually dry one and it was necessary to give this area increased attention in the way of patrol service in order to protect the parent fish until the rains arrived later in the fall when they were able readily to pass up.

Bella Coola and Kimsquit.—The spawning areas in this vicinity were fairly well seeded.

Rivers Inlet.—Conditions at this point were found to be most satisfactory. The provincial officer, our own overseer and the superintendent of the hatchery, all agree that the spawning beds were abundantly seeded with sockeye and that the run to the Inlet was one of the best in recent years.

Undoubtedly the very considerable amount of work done in 1919 in the way of clearing obstructions to the ascent of salmon in the several tributaries of Owekano lake contributed very largely to the good supply of salmon in 1923.

Smiths Inlet.—Conditions in this area were found to be similar to those in the Rivers Inlet district. The fishery overseer states that the showing of sockeye was the best seen by him since 1918. It will be remembered that in 1919 in the middle of the fishing season the seining operations at Quashella creek were stopped and this no doubt has a bearing on present conditions.

Queen Charlotte Islands.—It is only in the even numbered years that the large run of pinks occurs in this district. The quality of these pinks is equal to any pink salmon taken on the Pacific coast. Although the off year for the above mentioned variety the spawning grounds were well seeded with chums and the conditions in the several streams were such as to permit of a reasonably easy ascent to the spawning grounds.

Alert Bay District.—The principal stream in this area is the Nimpkish river. During the season there were no fewer than ten drag-seines operating at this point for sockeye. Fishing was not permitted, however, until the 20th of June, although in previous years operations commenced during the last few days in May. The result was that an abundant supply of parent fish were able to reach the spawning areas.

Cohoes and chums were plentiful everywhere but owing to this being the off year for pinks the supply of that variety was light.

Quathiaski District.—The run of sockeye to Heydon bay and Port Neville was good, although that to Philips arm was not up to expectations. There was an excellent run of the coho variety although pinks and chums were not so numerous.

Pender Harbour District.—No cannery operations were conducted in this district during the season. The Sauch-en-Auch creek area which has been receiving considerable attention during the past few years from the Department was again plentifully supplied with spawning sockeye. The runs of coho and chums were very satisfactory and in certain portions of the district this applies to pinks as well.

The streams on the east coast of Vancouver island generally were well seeded with chums particularly.

At the Cowichan river, which is one of the principal angling streams on the coast, the fishery officers report excellent catches of rainbow and cutthroat trout. The prohibition of the use of salmon eggs or compound in angling will undoubtedly greatly assist conservation of the sport fish.

West Coast of Vancouver island.—The only sockeye districts on the west coast of any considerable importance are at Kennedy river in Clayoquot sound, and Anderson, Sproat and Stamp rivers in Barclay sound. The supply at Kennedy lake, although the pack at the cannery at the mouth of the river was 4,482 cases of sockeye as against 5,393 in 1922, proved to be rather disappointing. The collection of eggs at the hatchery amounted to only 5,306,000.

At Anderson river the conditions were much more satisfactory and the hatchery situated on the lake was filled to capacity and by far the largest percentage of parent fish were permitted to deposit their eggs naturally. The runs to the Sproat and Stamp rivers were light.

The supply of chum salmon on the west coast was excellent and this applies particularly to the Barclay sound district, the spawning streams being splendidly seeded.

Fraser River Watershed.—In the districts above Hells gate the reports received show that the runs of salmon were extremely disappointing. The Quesnel lake, Bowron lake and Chilco lake districts provide no encouragement.

In the Shuswap area, however, the local officer reports an improvement over the year previous and particular reference is made to the South Thompson, Little river, Adams river and Barriere river.

At Harrison lake there was an unusually large run of sockeye and 11,162,000 eggs of this variety were taken at the outlet of the rearing ponds and evidently were fish returning as a result of a distribution of fry from these ponds four years previous. The collection at Morris creek was also a very satisfactory one. It is noted that the supply of the sockeye variety taken during this year's spawning operations was the largest since 1915.

In the Birkenhead river there was, as usual, an excellent supply of parent fish. The hatchery was easily filled to capacity and large quantities of spawning fish were permitted to deposit their eggs naturally.

There was a good run of the several varieties apart from the sockeye. The supply of pink salmon this year requires special mention. In spite of prophecies to the effect that overfishing had largely depleted the pink run, the numbers arriving this year exceeded all expectations and the spawning grounds in the lower Fraser, Howe sound, and Burrard inlet were very heavily seeded. It is only in the odd numbered years that the large run of pinks occurs to the Fraser.

GENERAL

Owing to the reduction of 40 per cent in the number of salmon gill-net licenses issued to others than resident white British subjects and Canadian

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Indians during the year, there was a smaller amount of fishing equipment in operation in most of the salmon gill-net areas and this fact undoubtedly contributed to the splendid conditions found on most of the spawning beds at the head of the gill-net areas.

DEPARTMENTAL OFFICERS

The industry was fortunate during the year in having the opportunity to discuss locally the numerous fishery problems with the minister, the deputy minister, and the assistant deputy minister, who visited the coast.

STAFF

As a result of the development of the fisheries of the province and the requirements of the several departments, the staff is kept exceedingly busy and in spite of much overtime it is becoming more and more difficult to keep up with the work. It is a great pleasure to testify as to the loyalty of the staff in the province in spite of the volume of work which is required of the members.

STATEMENT OF SALMON PACK—BRITISH COLUMBIA

WHOLE PROVINCE—1876 TO 1923

STATEMENT No. 1

Year	Num-ber of can-neries oper-ated	Number of salmon licenses issued				Sockeye	Red Spring	Pink Spring	White Spring	Blue-backs	Steel-heads	Cohoos	Pinks	Chums	Totals
		G.N.	Troll.	P.S.	D.S.	T.N.									
1876	3	Particulars not available.					Particulars of varieties not available—practically all sockeye.								9,847
1877	4	"	"	"	"	"	"	"	"	"	"	"	"	"	67,387
1878	10	"	"	"	"	"	"	"	"	"	"	"	"	"	113,601
1879	9	"	"	"	"	"	"	"	"	"	"	"	"	"	61,093
1880	9	"	"	"	"	"	"	"	"	"	"	"	"	"	61,849
1881	12	"	"	"	"	"	"	"	"	"	"	"	"	"	177,276
1882	18	"	"	"	"	"	"	"	"	"	"	"	"	"	255,061
1883	24	"	"	"	"	"	"	"	"	"	"	"	"	"	196,292
1884	17	"	"	"	"	"	"	"	"	"	"	"	"	"	141,239
1885	9	"	"	"	"	"	"	"	"	"	"	"	"	"	108,517
1886	17	"	"	"	"	"	"	"	"	"	"	"	"	"	161,264
1887	20	"	"	"	"	"	"	"	"	"	"	"	"	"	204,083
1888	21	"	"	"	"	"	"	"	"	"	"	"	"	"	184,040
1889	28	"	"	"	"	"	"	"	"	"	"	"	"	"	414,294
1890	32	"	"	"	"	"	"	"	"	"	"	"	"	"	408,978
1891	26	"	"	"	"	"	"	"	"	"	"	"	"	"	314,893
1892	27	"	"	"	"	"	"	"	"	"	"	"	"	"	228,470
1893	37	"	"	"	"	"	"	"	"	"	"	"	"	"	590,229
1894	32	"	"	"	"	"	"	"	"	"	"	"	"	"	494,371
1895	36	"	"	"	"	"	"	"	"	"	"	"	"	"	566,395
1896	47	"	"	"	"	"	"	"	"	"	"	"	"	"	601,570
1897	54	"	"	"	"	"	"	"	"	"	"	"	"	"	1,015,477
1898	51	"	"	"	"	"	"	"	"	"	"	"	"	"	484,161
1899	59	"	"	"	"	"	"	"	"	"	"	"	"	"	732,437
1900	64	"	"	"	"	"	"	"	"	"	"	"	"	"	585,413
1901	73	"	"	"	"	"	"	"	"	"	"	"	"	"	1,236,156
1902	66	"	"	"	"	"	531,436| Springs and Fall:								625,982
1903	59	"	"	"	"	"	Particulars of varieties not available—practically all sockeye.								473,674
1904	51	"	"	"	"	"	323,226 (35,421 Re & Wh. Springs)						107,247		465,894

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1905.....	67	"	"	"	"	1,080,673	(28,359	Red & Wh. Springs)	44,458	13,970	1,167,460
1906.....	64	"	"	"	"	459,679	31,261	69,132	(68,305	Pks.&Ch.)	629,460
1907.....	58	"	"	"	"	314,074	23,159	.....	.....	.....	683	87,900	(118,704	"	547,459
1908.....	52	"	"	"	"	355,023	25,433	.....	.....	.....	1,137	81,917	(76,448	"	542,689
1909.....	72	"	"	"	"	840,441	18,218	.....	.....	.....	.....	61,918	(46,544	"	967,920
1910.....	58	"	"	"	"	565,915	19,313	.....	.....	.....	.....	74,382	34,613	58,362	762,201
1911.....	59	"	"	"	"	383,509	38,751	.....	.....	.....	.....	119,802	305,247	91,951	948,965
1912.....	57	3,640	.....	92	139	444,762	62,345	.....	.....	.....	.....	165,309	247,743	58,325	996,576
1913.....	78	4,782	.....	74	124	972,178	37,433	.....	.....	.....	.....	69,822	192,887	77,965	1,353,901
1914.....	63	4,857	.....	61	107	536,696	32,908	.....	.....	.....	.....	120,201	220,340	184,474	1,111,039
1915.....	63	4,951	.....	61	109	476,042	51,734	.....	.....	.....	2,927	146,956	367,352	82,000	1,133,381
1916.....	72	4,600	.....	80	115	214,789	51,231	.....	.....	3,096	5,986	183,623	280,644	240,201	995,065
1917.....	94	5,286	1,370	99	136	339,848	48,630	.....	.....	(11,740	BB.&SH.)	157,589	496,759	475,273	1,557,485
1918.....	88	5,073	1,786	122	127	276,459	65,535	41,819 Pk. & Wh.)	.....	(15,916	BB.&SH.)	191,068	527,745	497,615	1,616,157
1919.....	82	4,598	2,260	139	104	369,445	73,179	9,077	18,295	24,323	4,493	175,670	346,639	372,035	1,393,156
1920.....	65	4,761	1,855	155	45	351,405	95,983	8,441	13,877	8,061	2,395	101,972	520,856	84,626	1,187,616
1921.....	56	4,777	1,452	59	35	163,914	36,725	6,061	6,966	7,060	1,220	117,288	192,906	71,408	603,548
1922.....	64	4,491	1,513	143	36	299,614	21,163	11,913	6,520	6,431	1,657	102,845	581,979	258,204	1,290,326
1923.....	61	3,957	1,446	223	31	334,647	17,539	4,858	4,745	7,097	1,760	112,044	440,932	418,055	1,341,677

NOTE.—Licenses issued 1923 include transfers from one district to another.

PACK OF CANNED SALMON IN THE FRASER RIVER DISTRICT—1876 TO 1923

STATEMENT No. 2.

Year	Num- ber of can- neries oper- ated	Number of salmon licenses issued				Sockeye	Red Spring	Pink Spring	White Spring	Blue- backs	Steel- heads	Cohoes	Pinks	Chums	Totals
		G.N.	Troll.	P.S.	T.N.										
1876	3	Particulars not available.				Particulars of varieties not available—practically all sockeye.									9,847
1877	5	"	"	"	"	"	"	"	"	"	"	"	"	"	64,387
1878	8	"	"	"	"	"	"	"	"	"	"	"	"	"	105,101
1879	7	"	"	"	"	"	"	"	"	"	"	"	"	"	50,490
1880	7	"	"	"	"	"	"	"	"	"	"	"	"	"	42,155
1881	8	"	"	"	"	"	"	"	"	"	"	"	"	"	142,516
1882	11	"	"	"	"	"	"	"	"	"	"	"	"	"	199,104
1883	13	"	"	"	"	"	"	"	"	"	"	"	"	"	109,701
1884	6	"	"	"	"	"	"	"	"	"	"	"	"	"	38,437
1885	6	"	"	"	"	"	"	"	"	"	"	"	"	"	89,617
1886	11	"	"	"	"	"	"	"	"	"	"	"	"	"	99,177
1887	12	"	"	"	"	"	"	"	"	"	"	"	"	"	130,088
1888	12	"	"	"	"	"	"	"	"	"	"	"	"	"	76,616
1889	16	"	"	"	"	"	"	"	"	"	"	"	"	"	303,875
1890	16	"	"	"	"	"	"	"	"	"	"	"	"	"	241,889
1891	11	"	"	"	"	"	"	"	"	"	"	"	"	"	178,954
1892	11	"	"	"	"	"	"	"	"	"	"	"	"	"	79,715
1893	21	"	"	"	"	"	"	"	"	"	"	"	"	"	457,797
1894	20	"	"	"	"	"	"	"	"	"	"	"	"	"	363,967
1895	21	"	"	"	"	"	"	"	"	"	"	"	"	"	400,368
1896	29	"	"	"	"	"	"	"	"	"	"	"	"	"	356,984
1897	35	"	"	"	"	"	"	"	"	"	"	"	"	"	860,459
1898	35	"	"	"	"	"	"	"	"	"	"	"	"	"	256,101
1899	41	"	"	"	"	"	"	"	"	"	"	"	"	"	510,383
1900	48	"	"	"	"	"	"	"	"	"	"	"	"	"	316,522
1901	49	3,832	.....	Particulars not available	"	"	"	"	"	"	"	"	"	"	990,313
1902	42	2,685	.....	"	"	293,477	Other Varieties: 33,618								327,095
1903	35	3,101	.....	"	"	204,809	(2,084: Red and White Spring)					25,728	4,504		237,125
1904	23	2,224	.....	"	"	72,688	(9,482: Red and White Spring)					45,667	1,066		128,903

1905.....	6	"	"	"	"	90,713	(351 Red & Wh. Spr.)	181 750	66 6,240	(700 Pk. & Ch.)	19 6,411	5,288 4,843	91,064
1906.....	8	"	"	"	"	132,631							132,878
1907.....	8	"	"	"	"	97,874							105,564
1908.....	8	"	"	"	"	74,452	1,254		9,505	(4,679 Pk. & Ch.)			89,890
1909.....	8	"	"	"	"	102,527	1,087		1,400	(300 Pk. & Ch.)			105,314
1910.....	8	"	"	"	"	141,921	383		2,075	19			144,398
1911.....	8	"	"	"	"	105,763	1,317		8,287	6,411		5,288	127,066
1912.....	8	"	"	"	"	129,217	1,452	468	11,095	11,723		4,843	158,798
1913.....	8	"	"	"	"	79,345	1,589		3,708	4,287		2,015	90,944
1914.....	*7	"	"	"	"	89,890	566		7,789	5,784		5,023	109,052
1915.....	8	"	"	"	"	162,651	1,022		7,115	2,964		5,387	179,431
1916.....	9	"	"	"	"	58,192	1,033	389	15,314	3,567		20,144	112,629
1917.....	10	815	"	"	"	75,326	715	102	9,124	8,065		16,101	113,758
1918.....	10	815	"	"	"	68,447	957	367	12,074	29,542		6,729	128,937
1918.....						66,842	957	85	12,074	29,542		6,729	127,882
1919.....	11	916	"	"	"	73,754	967	234	9,038	6,538	2	7,089	110,736
1919.....						72,072	967	234	9,038	6,538	2	7,089	109,234
1920.....	10	1,044	"	"	"	142,793	1,537	190	2,922	26,189		1,226	174,938
1920.....						133,245	1,537	190	2,922	26,189		1,226	165,800
1921.....	10	1,215	"	"	"	50,849	386	44	4,055	3,055		173	58,562
1921.....						49,729	406	44	4,784	5,336		173	60,569
1922.....	10	1,191	"	"	"	68,818	216	69	1,145	24,311		311	94,900
1922.....						56,518	216	69	1,145	24,311		311	92,690
1923.....	10	1,172	"	"	"	118,502	230	256	1,526	10,057		3,246	133,930
1923.....						112,350	230	256	1,526	10,057		3,246	127,778

NOTE: Figures shown in black are packs from fish caught at Rivers Inlet or Smiths Inlet. Figures in black for years previous to 1918 are actual packs. Figures shown in italic, 1918 to 1923, are actual packs irrespective of where fish taken and not including fish shipped out for canning in other districts.

*1914 figures include Rivers Inlet pack only, no figures being available for Smiths Inlet for that year.

NOTE.—Re column "Varieties other than sockeye packed at Smiths Inlet." For the years this column is utilized, figures of the different varieties other than sockeye packed at Smiths Inlet were not available, and had to be shown as a total. Sockeye for these years are shown under their proper heading.

†Statement No. 3 on page 68.

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1909	12	"	"	87,901	11,727	742			12,249	(28,120	Pk.&Ch.)	140,739
1910	12	"	"	187,246	9,546	239			11,531	13,473		222,035
1911	12	Particulars not available.		131,066	15,514	2,428			23,376	81,956	70	254,410
1912	12	"	"	92,498	19,332	4,501			39,835	97,588	504	254,258
1913	13	"	"	52,927	23,250	3,186			18,647	66,045		164,055
1914	13	"	"	130,166	11,529	211			16,378	71,021	8,329	237,634
1915	13	"	"	116,553	15,069	204			32,190	107,578	5,769	279,161
1916	14	"	"	60,923	18,372	2,561			47,409	73,029	17,121	223,158
1917	15	788*	"	65,760	13,586	2,699			38,456	148,319	21,516	292,219
1918	15	889*	"	123,322	16,013	6,828			38,759	161,727	22,573	374,216
1919	14	1,153	"	184,945	19,661	2,656		3,624	36,559	117,303	31,457	398,877
1920	15	954	"	90,869	37,403	3,123		2,198	18,068	177,679	3,834	334,392
1921	13	1,109	"	40,018	18,599	445			45,033	124,457	1,993	234,765
1922	13	1,091	"	100,615	7,080	1,805		2,722	24,673	203,555	17,668	362,055
1923	13	900	"	131,731	8,863	499		2,885	31,967	145,973	16,527	338,863

* Approximately.
NOTE.—Salmon gill-net figures 1923 include 1 transfer.

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1909.....	3	"	"	28,246	2,280	57	6,818	(3,589 Pk. and (Ch.)	40,990
1910.....	4	Particulars not available.	"	30,810	1,228	11	6,285	895	39,720
1911.....	3	"	"	37,327	3,434	.....	325	.....	7,842	11,467	65,684
1912.....	3	"	"	36,037	5,710	.....	1,226	.....	12,468	12,476	71,162
1913.....	3	"	"	23,574	2,999	.....	152	.....	3,172	20,539	53,423
1914.....	4	"	"	31,327	2,660	.....	725	.....	9,276	25,333	94,890
1915.....	4	"	"	39,349	3,053	.....	648	.....	15,171	34,879	104,289
1916.....	4	"	"	31,411	3,061	.....	784	.....	19,139	59,593	126,686
1917.....	4	"	"	22,188	3,170	.....	1,326	.....	22,180	44,568	119,495
1918.....	6	"	"	21,816	2,332	.....	1,003	.....	17,060	59,206	143,908
1919.....	5	"	"	28,259	2,408	.....	581	.....	10,900	29,949	97,512
1920.....	5	"	"	16,740	3,584	.....	789	.....	3,700	43,151	81,153
1921.....	5	"	"	9,364	1,431	.....	220	.....	8,236	29,488	51,765
1922.....	5	"	"	31,277	1,466	.....	255	42	3,533	75,687	124,071
1923.....	5	"	"	17,821	2,522	.....	335	.....	7,894	44,165	99,580

PACK OF CANNED SALMON OF PUGET SOUND FROM 1887 TO 1923

STATEMENT No. 3.

Year	No. of canneries operated	Spring	Sockeye	Medium Red	Chum	Pink	Steelhead	Total
1887		Particulars of varieties not available.						22,000
1888	4	"	"	"				21,975
1889	2	240		7,480	1,145	2,890		11,674
1890	1	1,000		3,000	4,000			8,000
1891	2	382	5,538	5,869	3,093	5,647		20,529
1892	2	86	2,954	7,206	16,180			26,426
1893	3	1,200	47,852	11,812	11,380	17,530		89,331
1894	3		41,781	22,418	22,152	9,049		95,400
1895	7	1,542	65,143	50,865	38,785	23,633		179,968
1896	11	13,495	72,979	82,640	26,550			195,664
1897	12	9,500	312,048	91,900	23,310	57,268		494,026
1898	18	11,200	252,000	98,600	38,400			400,200
1899	19	24,364	499,646	111,387	31,481	252,733		919,611
1900	19	22,350	229,800	128,200	89,100			469,450
1901		Particulars of varieties not available.						1,380,590
1902	21	30,049	372,301	85,817	93,492			581,659
1903	22	14,500	167,211	103,450	12,001	181,236		478,488
1904	13	14,441	109,264	118,127	49,656			291,488
1905	24	1,804	825,453	79,335	41,057	70,992		1,018,641
1906	16	8,139	178,748	94,497	149,218			430,602
1907	14	1,814	93,122	119,372	50,249	433,423		698,080
1908	22	95,210	170,951	128,922	47,607	6,075		448,765
1909	11	13,019	1,097,904	143,133	53,688	370,993		1,632,949
1910	24	10,064	248,014	162,755	146,942	108		567,883
1911	15	21,823	127,761	256,124	104,321	1,046,992		1,557,029
1912	20	20,252	184,680	149,727	60,760	700		416,125
1913	22	1,234	1,673,099	61,019	56,225	791,886		2,583,463
1914	31	26,044	335,230	151,893	278,801	892		792,860
1915	41	28,466	64,548	180,783	411,724	583,649		1,269,206
1916	32	37,030	84,637	155,832	427,878	1,887		707,278
1917	45	57,543	411,538	114,276	216,285	1,124,884		1,921,554
1918	32	63,366	50,723	235,860	267,538	6,605	106	624,198
1919	35	68,542	64,346	210,883	525,541	421,215	5,076	1,295,626
1920	11	25,846	62,654	24,502	48,849	4,669		166,520
1921	23	25,567	102,967	89,412	30,831	404,713		653,490
1922	16	20,615	48,566	111,711	65,552	2,225		248,729
1923	18	15,777	47,402	122,000	97,081	475,849	29	758,138

COMPARATIVE STATEMENT OF FISHERY LICENSES ISSUED, SEASONS 1923 AND 1922
STATEMENT No. 7.
SUMMARY—WHOLE PROVINCE OF BRITISH COLUMBIA. As at February 16, 1924.

Variety of License	Season, 1923										Season, 1922				Variety of License			
	Issued				Transferred from other districts:				Total operating in District:				Issued					
	Wh.	Ind.	Jap.	Total	Wh.	Ind.	Jap.	Total	Wh.	Ind.	Jap.	Total	Wh.	Ind.		Jap.	Total	
Salmon Cannery.....	61			61					61					64			64	Salmon Cannery.
Salmon Curing.....	44		5	49					44			5		52			52	Salmon Curing.
Salmon Trap-net.....	6			6					6					4			4	Salmon Trap-net.
Salmon Purse-seine.....	192	2		194	29			29	221	2				143			143	Salmon Purse-seine.
Salmon Drag-seine.....	31			31					31					36			36	Salmon Drag-seine.
Salmon Gill-net.....	1,468	1,094	1,193	3,755					1,642	1,122	1,193	3,957		1,470	1,032	1,989	4,491	Salmon Gill-net.
Salmon Trolling.....	697	499	249	1,445	1			1	698	499	249	1,446		743	438	332	1,513	Salmon Trolling.
Boat (Buyer's).....	74	6	96	176					74	6	96	176		77	6	165	248	Boat (Buyer's).
Buyer's.....	132	5	25	162					132	5	25	162		85		41	126	Buyer's.
Asst. Salmon Seine Boat.....	342	539		881					342	539		881		49	52	38	139	Asst. Sal. Seine boat.
Capt. Salmon Seine Boat.....	28	30		58					28	30		58						Capt. Sal. Seine boat.
Asst. Salmon Gill-net.....	121	343	528	992					121	343	528	992						Asst. Sal. Gill-net.
Experimental Salmon Cannery.....														2			2	Experimental Sal. Cannery.
Herring Cannery.....	3			3					3					2			2	Herring Cannery.
Herring Curing.....	23		6	29					23		6	29		12		10	22	Herring Curing.
Herring Purse-seine.....	37		3	40					37		3	40		24		5	29	Herring Purse-seine.
Herring Drag-seine.....	3			3					3									Herring Drag-seine.
Herring Gill-net.....	21		11	32					21		11	32		19		19	38	Herring Gill-net.
Capt. Herring seine boat.....	15	5	9	29					15	5	9	29		1			1	Capt. Herring Seine boat.
Angling Permits.....	4		1	5					4					51			52	Angling Permits.
Cod Hook and Line.....	66	8	304	378					66	8	304	378						Cod Hook and Line.
Crab Fishery.....	96	19	3	118					96	19	3	118		88	5	6	99	Crab Fishery.
Grayfish Hook and Line.....	11	3	33	47					11	3	33	47						Grayfish Hook and Line.
Grayfish Gill-net.....	14		21	35					14		21	35		31		89	120	Grayfish Gill-net.
Miscellaneous Licenses.....	170	11	136	317					170	11	136	317		162	12	229	403	Miscellaneous Licenses.
Totals.....	3,659	2,564	2,623	8,846	204	28		232	3,863	2,592	2,623	9,078	3,115	1,545	2,933		7,593	Totals.

STATEMENT SHOWING INCREASE OR DECREASE IN LICENSES ISSUED IN 1923 OVER LICENSES ISSUED IN 1922,
BRITISH COLUMBIA

STATEMENT No. 8

Variety of License	Area	Licenses issued 1923				Increase over 1922			Decrease from 1922			Totals All nationalities	
		Whs.	Ind.	Jap.	Total	Whs.	Ind.	Jap.	Whs.	Ind.	Jap.	Net In- crease	Net De- s- crease
Salmon Gill-net.....	Whole province..... Percentage.....	1,642	1,122	1,193	3,957	172 9.5	90 7.4				796 40.0		534 11.9
"	District No. 1..... Percentage.....	414	27	523	964	24 6.2				7 20.6	349 40.0		332 25.6
"	District No. 2— Naas River..... Percentage.....	33	116	95	244	1 3.1	2 1.7				63 39.9		60 19.7
"	Skeena River..... Percentage.....	178	337	385	900	19 11.9	47 16.2				257 40.0		191 17.5
"	Rivers Inlet and Smiths Inlet..... Percentage.....	614	463	95	1,172	47 8.3				4 0.9	62 39.5		19 1.6
"	Outlying..... Percentage.....	349	120	66	535	114 48.5	41 51.9				45 40.5	110 25.9	
"	Totals— District No. 2..... Percentage.....	1,174	1,036	641	2,851	181 18.2	86 9.1				427 40.0		160 5.3
"	District No. 3..... Percentage.....	54	59	29	142		11 22.9		33 37.9		20 40.9		42 22.8
Salmon Trolling.....	Whole province..... Percentage.....	698	499	249	1,446		61 13.9		45 6.1		83 25.0		67 4.4
"	District No. 1..... Percentage.....	25			25	8 47.1						8 47.1	
"	District No. 2..... Percentage.....	162	104	1	267				140 46.4	5 4.6	1 50.0		146 35.3

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“	District No. 3— East coast..... Percentage.....	336	139	104	579	138 69.7	108 343.4					34 24.7	212 57.8
	West coast..... Percentage.....	175	256	144	575			51 22.6	42 14.1	48 25.0			141 19.7	.....
	Totals— District No. 3..... Percentage.....	511	395	248	1,154	87 20.5	66 20.1			82 25.0	71 6.6			.....
Boat.....	Whole province..... Percentage.....	74	6	96	176			3 3.9		69 41.9			72 29.0	.....
Buyers.....	Whole province..... Percentage.....	132	5	25	162	47 55.3	5 Inf.			16 39.0	36 28.6			.....

APPENDIX 2

FISHERIES

FINANCIAL STATEMENT, 1923-24

Vote No.	Service	Appropriation	Expenditure
		\$ cts.	\$ cts.
249	Salaries and disbursements of Fishery Officers, Fisheries Patrol Service, Fisheries Protection Service.....	880,000 00	807,189 08
250	Building fishways and clearing rivers.....	40,000 00	20,316 45
251	Legal and incidental expenses.....	4,000 00	656 16
252	Conservation and development of deep-sea fisheries.....	95,000 00	19,864 30
253	Fisheries Intelligence Bureau.....	2,000 00	958 19
254	Inspection of canned and pickled fish.....	25,000 00	23,122 99
255	Fish culture.....	370,000 00	350,487 34
256	Investigations into fisheries.....	15,000 00	5,553 28
257	Marine Biological Board.....	42,000 00	42,000 00
		1,473,000 00	1,270,147 79
	Civil Government salaries.....	99,820 00	93,521 58
	Contingencies.....	20,000 00	18,352 02
	Fishing bounty.....	160,000 00	159,916 80
		1,752,820 00	1,541,938 19
435	Cost of Living Bonus.....		58,618 51
	Superannuation No. 4, Retirement Act, 1920.....		5,456 95
	Gratuities.....		230 00
	Total net expenditure, 1923-24.....		1,606,243 65

DETAILED STATEMENT—EXPENDITURE—SALARIES AND DISBURSEMENTS, 1923-24

Provinces	Inspector's Overseers and Ward's		Allowances			Gasoline and Oil	Special Guardians		Sundry		Total
	Salaries	Disbs.	Auto	Boat	Horse	\$ cts.	Wages	Expenses	\$ cts.	\$ cts.	\$ cts.
<i>Eastern Division—</i> General account..... Nova Scotia, G.A..... " No. 1..... " No. 2..... " No. 3.....	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
	9,558 84	1,704 82					280 00	18 45	50 91		11,613 02
	3,120 00	372 15							116 00	3,608 15	
	12,660 00	2,744 00	3,200 00	625 00		244 79	15,933 13	157 94	186 09	35,750 95	
Prince Edward Island, No. 1..... " No. 2..... " No. 3.....	16,140 00	2,977 14	4,328 89	250 00	173 33	104 93	6,573 01	252 50	111 80	30,911 60	
	18,278 32	3,899 95	4,000 00	15 00	600 00		5,277 70	55 61	105 99	32,232 57	102,503 27
	7,903 38	1,970 26	1,600 00				4,402 21	170 00	364 36	16,410 21	
	2,331 00	726 45		225 00		299 10		300 00	4 88	3,886 43	20,296 64
New Brunswick, No. 1..... " No. 2..... " No. 3.....	9,120 00	1,908 38	1,600 00	400 00	108 00	235 36	3,325 00		107 99	16,804 73	
	16,680 00	3,462 86	4,251 61	997 73	111 29	579 24	8,698 27	6 00	148 02	34,935 02	
	6,720 00	1,326 00	200 00	37 50	150 00	75 10	6,926 60		26 45	15,461 65	67,201 40
	102,511 54	21,092 01	19,180 50	2,550 23	1,142 62	1,538 52	51,415 92	960 50	1,222 49		201,614 33
Quebec.....									282 90		282 90
<i>Central Division—</i> General account..... Manitoba..... Saskatchewan..... Alberta.....	1,230 00	32 50							5 00		1,267 50
	7,575 00	3,381 46		168 75	618 75		562 50	666 80	68 70		13,041 96
	9,035 00	3,578 78	112 50	68 75	483 33		325 00	621 50	57 02		14,281 88
	7,908 11	3,154 34	112 50	168 75	450 00		820 00	783 15	312 97		13,709 82
British Columbia— General account..... British Columbia, No. 1..... " No. 2..... " No. 3.....	25,748 11	10,147 08	225 00	406 25	1,552 08		1,707 50	2,071 45	443 69		42,301 16
	19,610 38	1,304 09							4,093 46	25,007 93	
	10,165 66	8,647 70					7,758 93	1,815 41	1,368 41	29,756 11	
	11,921 71	3,322 55					3,547 33	731 95	2,090 56	21,614 10	
General Account.....	14,137 45	7,438 37				304 64	4,018 04	1,124 35	589 61	27,612 46	103,990 60
	55,835 20	20,712 71				304 64	15,324 30	3,671 71	8,142 04		103,990 60
									20,455 77		20,455 77

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SUMMARY

General Account.....	102,511 54	21,092 01	19,180 50	2,550 23	1,142 62	1,538 52	51,415 92	960 50	20,455 77	20,455 77
Eastern Division.....									1,222 49	201,614 33
Quebec.....	25,748 11	10,147 08	225 00	406 25	1,552 08		1,707 50	2,071 45	282 90	282 90
Central Division.....	55,835 20	20,712 71				304 64	15,324 30	3,671 71	443 69	42,301 16
British Columbia.....									8,142 04	103,990 60
	184,094 85	51,951 80	19,405 50	2,956 48	2,694 70	1,843 16	68,447 72	6,703 66	30,546 89	368,644 76

DETAILED STATEMENT FISHERIES PATROL SERVICE EXPENDITURE, 1923-24

Establishments and Accounts	Paylist \$ cts.	Board or Prov'n. \$ cts.	Fuel \$ cts.	Repairs		Supplies			Clothing \$ cts.	Sundry \$ cts.	— \$ cts.	Total \$ cts.
				Hull \$ cts.	Engine \$ cts.	Engine \$ cts.	Deck \$ cts.	Stewards \$ cts.				
<i>Eastern Division—</i>												
<i>Nova Scotia</i>												
“Mildred McColl”	3,519 93	2 10	1,130 26	136 01	65 44	238 58	54 33	48 82	2 68	71 05	5,269 20	8,699 93
“A”	2,105 87	29 78	441 99	62 66	415 87	85 56	52 72	65 07		16 21	3,275 73	
“B”										5 00	5 00	
“E”										150 00	150 00	
<i>Prince Edward Island</i>												
“Ostrea”				151 70		58 23		1 30		304 80	516 03	1,590 55
“D”										25 00	25 00	
“Richmond”	779 58		105 00		8 67	43 99	72 08	0 39		39 81	1,049 52	
<i>New Brunswick</i>												
“Togo” (chartered boat)	1,505 00		423 83			37 68	4 70	21 00		351 66	2,343 87	12,602 99
“C”	1,657 62	9 75	414 89	461 13	59 32	117 82	23 55	6 13		242 40	2,992 61	
“G”										43 07	43 07	
“Phalarope”	3,838 77		913 97	89 91	138 80	200 53	58 97	85 70	38 07	19 42	5,384 14	
“Shannon”	1,075 00		234 86	0 96			10 78			202 60	1,524 20	
“Vendetta”			20 05	163 00	41 05					91 00	315 10	
<i>Central Division—</i>												
“Bradbury”	14,481 77	41 63	3,684 85	1,065 37	729 15	782 39	277 13	228 41	40 75	1,562 02		22,893 47
<i>British Columbia Division—</i>												
General account	140 00		302 18	5 90	250 00	3 25	32 03	3 57	8 86	12,369 74		13,115 53
Digby Island Shop	3,027 50		32 55					2 19		152 55		3,214 79
Sapperton Warehouse	2,520 00		79 98			93 00		9 20	31 50	6 00		2,739 68
<i>Chartered Boats</i>												
“Akashi”	926 21		357 72			50 75				1,270 00	2,604 68	66,757 00
“Annie C.”	733 07		70 58			5 99		4 16		497 85	1,311 65	
“Aramac”	364 94		76 00			55 00				108 00	603 94	
“Bluebird”	316 67		76 60			6 50		0 50		98 00	498 27	
“Clare”	345 00		83 56			6 49		1 58		368 00	804 63	
“Corycia”	123 33		39 18			3 90		2 10		39 00	207 51	
“Dustie”	578 71		103 41			14 34		4 94		770 00	1,471 40	
“Elk”			61 79			18 08		1 54		138 00	219 41	
“Elkhart”	899 77		126 29			25 08				526 00	1,577 14	
“Esperanza”	720 00		337 50			51 95				219 00	1,328 45	
“Flier”	248 71		9 00							42 00	299 71	

"Frisbie"	460 00	51 69			10 27		1 64		610 00	1,133 60
"Gene"	1,152 16	303 82			65 37				1,220 00	2,741 35
"Gosum"	223 33	50 51			17 45				67 00	358 29
"Grace B."	277 85								119 19	397 04
"Hillier"	153 34	11 11			2 63				48 00	215 08
"Iona"	795 00	221 65			26 15				648 00	1,694 30
"Joybird"	564 19	145 88			11 19				616 00	1,348 42
"Kathalma"	2,696 77	1,203 88	33 03		190 68	0 72	63 36	23 06	2,832 74	7,670 28
"Lady"	506 45	40 45			4 70				158 50	710 10
"Leach"	400 32	159 00			13 50				121 00	693 82
"Leinsh"	678 95	224 45		2 50	58 84		6 32		948 10	1,919 16
"Mable"		10 90			7 25					18 15
"Marie S."	1,255 63	241 17			26 18		6 82		1,148 00	2,677 80
"Murrellette"	645 97	617 28			64 90		4 04		1,008 00	2,340 19
"Nicolson"	1,100 00	181 51			36 09				357 75	1,675 35
"Noohalk"	914 51	284 27			22 27		3 35		854 00	2,078 40
"Odessa"	800 47	178 15			16 55	15 00			904 85	1,915 02
"Olive"	466 67	107 14			21 21		7 76		145 55	740 57
"Oyashimo"	978 95	143 15			18 92				1,080 00	2,228 78
"Pinte"	94 09	1 70							30 00	125 79
"Pioneer"	377 85	73 25			9 75				116 00	576 85
"Rambler"	412 50	62 50			8 45				280 00	763 45
"Regal R."	497 85	107 33							600 00	1,205 18
"Reliance"	1,184 35	150 59			8 61		3 96		848 00	2,195 51
"Result"	419 91	259 20			62 08		8 80		161 20	911 19
"Rhoda"	322 58	88 00			4 00				100 00	514 58
"Robertson"		8 40			3 90					12 30
"Rover"	345 00	168 08			29 44				460 00	1,002 52
"Sea-Dog"	203 33	15 50			5 63				63 00	287 46
"Seafoam"	675 00	215 82			28 67		6 29		921 16	1,846 94
"Seal Cove"		112 26			33 78		3 24		16 00	165 28
"644"		16 88			9 79					26 67
"Sophann"	795 00	226 91			34 90		2 25		864 00	1,923 06
"Stubbs"	300 00	72 60			22 50				92 00	487 10
"Swing"	784 16	142 13			16 43		3 16		1,032 00	1,977 88
"Teal"	380 00	4 55			0 35				453 50	838 40
"Ukataw"	734 29	250 99			36 81		3 16		1,100 00	2,125 25
"Vera S. Fry"	413 71	165 43			20 25				570 00	1,169 39
"Wabash"	795 00	677 44			59 75		1 64		1,283 70	2,817 53
"We-Two"	750 00	339 59			59 30		2 25		256 00	1,407 14
"Wolny"	401 00	29 95			3 44				213 50	647 89
"W. T."	170 00	20 05			6 10				51 00	247 15
Departmental Boats										144,485 37
"Anina"		90 91	173 14	92 37	34 14	4 21	6 00		2 25	403 02
"Babine No. 1"	700 00	98 24	68 67	8 50	16 51	2 85	0 81		95 93	991 51
"Babine No. 2"	776 77	98 23	27 18	4 22	15 64	4 85	2 69		59 20	988 78
"Black Raven"	1,998 71	996,90	302 14	189 09	147 47	26 88	83 57	18 52	125 58	3,888 86
"Bonila"	1,565 96	1,056 51	677 90	109 55	2,488 89	25 40	51 12		65 67	6,041 00
"Cloyah"	167 34	69 89	697 27	5,650 00	78 43	17 05			6 60	6,686 56

DETAILED STATEMENT FISHERIES PATROL SERVICE EXPENDITURE, 1923-24—Concluded

Establishments and Accounts	Paylist \$ cts.	Board or Prov'n. \$ cts.	Fuel \$ cts.	Repairs		Supplies		Clothing \$ cts.	Sundry \$ cts.	— \$ cts.	Total \$ cts.
				Hull \$ cts.	Engine \$ cts.	Engine \$ cts.	Deck \$ cts.				
<i>British Columbia Division—Con. Departmental Boats—Con.</i>											
"Cohoe"	718 95		302 48	254 22	355 14		16 73		118 54	1,936 05	
"Egret"	1,500 00		240 27	564 61	935 84		41 25		94 00	5,608 76	
"Elk"	2,804 52		543 85	217 20	124 02		0 50		5 65	3,790 68	
"Fispa"	55 00		71 38				5 80	4 29	565 26	786 52	
"Foam"	5,040 00		755 36	306 38	387 42		193 09		230 02	7,018 48	
"Givenchy"	25,755 16	7,023 49	11,582 39	3,448 56	1,730 70		701 15	1,659 74	915 40	55,688 13	
"Gull"	944 84		572 15	561 51	421 74		33 25		122 62	2,774 67	
"Hawk"	1,601 01		693 50	240 32	22,69		18 70		14 00	2,762 00	
"Heron"	1,399 10		403 92	305 03	75 67		30 60		35 80	2,325 05	
"Humming Bird"			5 17		1 65					13 20	
"Kayex"				7 51	28 33				81 00	116 84	
"Linnett"	1,497 02		524 63	190 55	25 75		52 60		67 55	2,485 80	
"Marfish"	6,394 66	1,613 52	1,873 73	2,546 52	502 51		117 95	158 81	498 57	14,279 11	
"Merlin"	1,234 51		390 10	736 15	50 16		38 92		53 40	2,609 00	
"Merrysea"	4,650 65		1,169 19	46 77	1,096 50		53 85		145 25	7,369 65	
"Ptarmigan"				2 30			1 00			3 30	
"Revidis"					341 43	288 43			1 52	631 38	
"Semiahmo"	1,890 00		19 81		10 52	8 34			14 89	1,956 66	
"Swan"	4,740 00		777 85	215 13	967 55	59 66	13 70	3 79	43 72	6,846 28	
"Vanidis"					341 44	288 44		14 85	2 78	647 51	
"Vedder"	1,350 00		199 10	1,631 91	210 10	1,849 70	180 94	8 74	108 62	5,836 57	
	101,854 29	9,263 05	31,677 06	17,336 80	9,858 49	11,149 24	1,629 02	1,932 16	42,475 70		230,312 37
General Account						11,953 00			2 58		11,955 58

SUMMARY

Eastern Division	14,481 77	41 63	3,684 85	1,065 37	729 15	782 39	277 13	228 41	1,562 02		22,893 47
Central Division	9,896 33	2,647 83	5,748 98	3 19		239 38	791 12	182 98	186 65		20,051 25
British Columbia Division	101,854 29	9,263 05	31,677 06	17,336 80	9,858 49	11,149 24	1,629 02	3,136 56	42,475 70		230,312 37
General Account						11,953 00			2 58		11,955 58
	126,232 39	11,952 51	41,110 89	18,405 36	10,587 64	24,124 01	2,697 27	3,547 95	44,226 95		285,212 67

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FISHERIES

DETAILED STATEMENT FISH CULTURE EXPENDITURE, 1923-24

Hatcheries	Salaries	Mainten- ance	Total of hatchery	Total of provinces
	\$ cts	\$ cts	\$ cts.	\$ cts.
<i>Nova Scotia—</i>				
Bedford.....	1,260 00	15,217 47	16,477 47	
Lindloff.....		1,119 55	1,119 55	
Margaree.....	3,600 00	4,212 52	7,812 52	
Margaree Pond.....		4,641 57	4,641 57	
Middleton.....	2,460 00	5,761 75	8,221 75	
Windsor.....	1,320 00	2,802 17	4,122 17	
	8,640 00	33,755 03		42,395 03
<i>Prince Edward Island—</i>				
Kelly's Pond.....	2,640 00	2,219 03	4,859 03	4,859 03
<i>New Brunswick—</i>				
Grand Falls.....	2,482 67	2,809 02	5,291 69	
Miramichi.....	2,940 00	2,254 88	5,194 88	
Miramichi Pond.....		3,768 57	3,768 57	
Nepisiquit.....		482 24	482 24	
New Mills Pond.....	380 00	4,455 60	4,835 60	
Restigouche.....	2,820 00	3,199 20	6,019 20	
Sparkle.....		547 98	547 98	
St. John.....	2,947 67	3,785 80	6,733 47	
St. John Pond.....		7,783 14	7,783 14	
Tobique.....		213 34	213 34	
	11,570 34	29,299 77		40,870 11
<i>Ontario—</i>				
Collingwood.....	3,390 00	9,299 83	12,689 83	
Kenora.....	4,051 00	9,348 27	13,399 27	
Kingsville.....	3,472 50	4,932 60	8,405 10	
Port Arthur.....	4,398 00	2,579 68	6,977 68	
Sarnia.....	3,900 00	4,832 66	8,732 66	
Southampton.....	3,270 00	3,922 89	7,192 89	
Thurlow.....	5,025 00	12,963 44	17,988 44	
Warton.....	3,884 48	4,910 52	8,795 00	
	31,390 98	52,789 89		84,180 87
<i>Manitoba—</i>				
Dauphin River.....	2,655 00	4,506 42	7,161 42	
Dauphin River Spawn Camp.....		1,100 64	1,100 64	
Gull Harbour.....	1,680 00	5,076 13	6,756 13	
Winnipegosis.....	2,125 00	11,286 70	13,411 70	
	6,460 00	21,969 89		28,429 89
<i>Alberta—</i>				
Banff.....	2,405 32	2,834 69	5,240 01	
Spray Lakes.....	39 84	1,139 31	1,179 15	
	2,445 16	3,974 00		6,419 16
<i>Saskatchewan—</i>				
Qu'Appelle.....	2,289 84	4,691 54	6,981 38	6,981 38

DETAILED STATEMENT FISH CULTURE EXPENDITURE, 1923-24—Concluded

Hatcheries	Salaries	Mainten- ance	Total of hatchery	Total of provinces
	\$ cts.	\$ cts	\$ cts.	\$ cts.
British Columbia—				
General Account.....	6,987 81	4,539 16	11,526 97	
Anderson.....	1,279 35	7,091 57	8,370 92	
Babine.....	810 00	8,089 80	8,899 80	
Cowichan.....	927 91	5,784 73	6,712 64	
Cranbrook Eyeing Station.....		77 05	77 05	
Cultus.....	532 91	5,322 87	5,855 78	
Gerrard.....		3,399 45	3,399 45	
Harrison.....	2,361 77	7,857 21	10,218 98	
Kennedy.....	1,301 81	5,731 41	7,033 22	
Lloyd's Creek Eyeing Station.....	85 00	1,246 63	1,331 63	
Nelson Eyeing Station.....	840 00	2,585 56	3,425 56	
New Westminster.....		0 70	0 70	
Pemberton.....	2,042 74	11,304 38	13,347 12	
Pitt.....	510 00	7,346 35	7,856 35	
Rivers Inlet.....	1,659 00	16,212 83	17,871 83	
Skeena.....	482 74	9,702 38	10,185 12	
Stuart.....	720 00	4,349 71	5,069 71	
	20,541 04	100,641 79	.....	121,182 83
General Account.....	5,500 00	9,669 04	15,169 04	15,169 04
	91,477 36	259,009 98	.....	350,487 34

SUMMARY

Nova Scotia.....	8,640 00	33,755 03	.....	42,395 03
Prince Edward Island.....	2,640 00	2,219 03	.....	4,859 03
New Brunswick.....	11,570 34	29,299 77	.....	40,870 11
Ontario.....	31,390 98	52,789 89	.....	84,180 87
Manitoba.....	6,460 00	21,969 89	.....	28,429 89
Alberta.....	2,445 16	3,974 00	.....	6,419 16
Saskatchewan.....	2,289 84	4,691 54	.....	6,981 38
British Columbia.....	20,541 04	100,641 79	.....	121,182 83
General Account.....	5,500 00	9,669 04	.....	15,169 04
	91,477 36	259,009 98	.....	350,487 34

FISHERIES
DETAILED STATEMENT FISHERIES PROTECTION SERVICE EXPENDITURE, 1923-24

Establishments and Accounts	Paylist \$ cts.	Board or Prov'n. \$ cts.	Fuel \$ cts.	Repairs		Supplies		Clothing \$ cts.	Sundry \$ cts.	Total \$ cts.
				Hull \$ cts.	Engine \$ cts.	Engine \$ cts.	Deck \$ cts.			
<i>Eastern Division—</i> "Arleau"	18,490 55	4,880 92	7,691 77	4,487 07	281 40	756 55	509 41	873 54	834 89	39,258 25
	20,459 38	5,451 31	9,836 06	2,782 44	2,661 38	1,029 79	350 72	781 68	1,197 71	44,878 10
	38,949 93	10,332 23	17,527 83	7,269 51	2,942 78	1,786 34	860 13	1,655 22	2,032 60	84,136 35
<i>Great Lakes—</i> "Becancour"										
			320 62						23 00	23 00
									332 62	355 62
<i>Western Division—</i> "Malaspina"	30,012 84	7,218 29	13,672 72	2,933 10	2,066 34	928 08	646 50	1,524 61	1,088 13	61,483 34
	1,942 58	729 38	1,445 70	264 37	267 41	278 06	213 74	288 2	144 65	5,804 48
	31,955 42	7,947 67	15,118 42	3,197 47	2,333 75	1,206 14	860 24	1,812 83	1,232 78	67,287 82
General Account										
								1,345 69	206 17	1,551 86

SUMMARY

Eastern Division	38,949 93	10,332 23	17,527 83	7,269 51	2,942 78	1,786 34	860 13	779 78	2,032 60	84,136 35
Great Lakes			320 62						35 00	355 62
Western Division	31,955 42	7,947 67	15,118 42	3,197 47	2,333 75	1,206 14	860 24	1,623 10	1,232 78	67,287 82
General Account	70,905 35	18,279 90	32,966 87	10,466 98	5,276 53	2,992 48	1,720 37	2,402 88	3,506 55	153,331 65

APPENDIX 3

REPORT ON FISHWAYS AND REMOVAL OF OBSTRUCTIONS FOR
YEAR ENDING DECEMBER 31, 1923, BY CHAS. BRUCE,
FISHERIES ENGINEER

The spring of 1923 was a particularly unfortunate one as regards fishways, owing to heavy freshets. In some instances structures that had been in operation for a number of years, as well as the dams in which they were installed, were either seriously damaged or broken down entirely.

The following dams in the Maritime Provinces were inspected by the fisheries engineer during the year:—

SALMON RIVER, VICTORIA COUNTY, N.B.

- (a) Joseph Cote—Saw-mill dam.
- (b) Terrialt—Grist-mill dam.
- (c) Davis Lumber Company—Saw-mill dam.
- (d) Davis Lumber Company—Storage dam.

The necessary surveys were made at each of these dams, and plans and specifications prepared from which fishways will be installed in 1924.

NASHWAAK RIVER, YORK COUNTY, N.B.

- (a) Nashwaak Pulp and Paper Company—Dam at Marysville.

Freshets had almost completely destroyed this fishway, and it was necessary to rebuild it. As conditions for the ascent of fish had never been satisfactory, it was decided to build the new fishway at another location in the dam. Plans and specifications were prepared and arrangements made with the company for the construction, which was completed in October.

BECAQUIMEC RIVER, CARLETON COUNTY, N.B.

- (a) The dam and fishway owned by the Sayre Lumber Company at Hartland were seriously damaged by the freshets in the spring. Repairs were effected by the company during the summer.

ST. CROIX RIVER, YORK COUNTY, N.B.

- (a) A low dam at the foot of Grand lake, owned by the St. Croix Pulp and Paper Company, was inspected. The fishway which is situated on the Canadian side of the international boundary was found to be entirely out of commission, the materials of which it was built being rotted away.

It is considered that a suitable fishway in the form of a ditch could be constructed with not greater expense and certainly more permanency on the American side of the dam. The Commissioner of Fisheries for the State of Maine was communicated with, requesting him to take the matter up as it is outside of the jurisdiction of this department. The dam in question prevents the passage of land-locked salmon which are in the river in quite large numbers.

- (b) The International Joint Commission rendered its decision requiring that the St. Croix Gas and Electric Light Company, and the Canadian Cottons Limited, owners of dams on the river at or near St. Stephen, to build fishways therein, from plans approved by both the American and Canadian Fisheries Departments.

MIRAMICHI RIVER, NORTHUMBERLAND COUNTY, N.B.

(a) Provision was made to have the owners build a fishway in a low dam on the Taxes river, a tributary stream entering the southwest Miramichi river at Boisetown.

(b) An examination was made of the dam on the Bartholomew river, a tributary to the southwest Miramichi, to determine if a fishway should be built therein. On account of the unfavourable reports of this river for spawning purposes, it was decided that a fishway should not be required.

GRAND RIVER FALLS, RICHMOND COUNTY, N.S.

A fishway was built over these falls a number of years ago which has since fallen into disuse. A survey of the structure was made and information obtained from which reconstruction will be carried out next year when water conditions are suitable.

SHEET HARBOUR RIVER, HALIFAX COUNTY, N.S.

The conditions for the construction of a fishway in the dam under construction by the Nova Scotia Hydro-Electric Commission were examined. There appears a fairly favourable opportunity for a partially natural fishway over the falls with some construction to get by the dam. The commission's engineer was interviewed and the situation fully discussed with him. Arrangements were made to have the fishway built, but its efficiency will be a matter to be determined after the power plant is in operation.

LAWRENCETOWN RIVER, HALIFAX COUNTY, N.S.

The old dam between Echo lake and lake Martin on the above river was removed providing a free passage for fish.

MUSHAMUSH RIVER, LUNENBURG COUNTY, N.S.

A set of revolving paddles was placed in the tailrace from the power house of the hydro-electric station. This was done with a view to preventing the ascent to salmon up the tailrace canal, and to direct them into the fishway.

Construction was completed too late in the season to determine the efficiency of this work, but it will be followed closely during the run of salmon next season.

MEDWAY RIVER, LIVERPOOL COUNTY, N.S.

Some repairs were carried out at the fishway in the pulp mill dam at Salters falls to remedy breaks that had occurred in the walls of the fishway. Reports show that this fishway was satisfactorily operated during the past season, both salmon and alewives ascending the river in numbers.

MERSEY RIVER, LIVERPOOL COUNTY, N.S.

Extensive construction was done on all the fishways on this river.

In the first dam a large fishway was built at the westerly end.

In the second dam a somewhat similar fishway was built at the easterly end.

The existing fishway in the third dam was enlarged, and the partitions rebuilt with a view to providing deeper water and easy runs between the pools.

The existing fishway in the fourth dam was extended further into the river with a view to making access easier during low water. The pool into which

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the fishway discharges was also improved by closing the openings in a ledge of rock below the dam and directing the flow through one main channel.

The existing fishway in the fifth dam was enlarged and extended further into the river with a view to making access easier during low water.

All work in connection with the above fishways was constructed in stone and concrete in order to assure permanency.

CLYDE RIVER, SHELburne COUNTY, N.S.

A new fishway was built in the pulp company's dam on the Clyde river at Queens, to replace the one destroyed by ice during the spring freshets.

JORDAN RIVER, SHELburne COUNTY, N.S.

A survey was made of the second dam on the river where the old fishway was destroyed by freshets. Plans will be prepared for a new fishway, and construction will be carried out next season.

ROUND BAY RIVER, SHELburne COUNTY, N.S.

In response to a petition from local residents urging that a new channel through the beach would greatly improve the passage for fish, a survey of the situation was made.

The result of this survey showed that in so far as the fisheries are concerned the present channel is adequate. As the greatest damage from the changed conditions, due to the shifting of the river's mouth, was to the lands behind the beach which had been submerged to the extent of a number of acres thereby, it was considered that any action looking to improvements would be a matter for the consideration of the Department of Public Works and recommendation was made accordingly.

In the province of Manitoba, where conditions for the ascent of fish at a number of dams were complained of, an inspection was made by an engineer from the department. The fishways have been built largely on ideas of the Inspectors and Overseers, and in some instances are entirely unsuitable for the varieties of fish using them.

Owing to the pressure of work the engineering staff was unable to give the renewal of any of these fishways attention during the low water of last summer.

As, however, the attention of the department was directed particularly to those on the Whitemud river, the repair of these is being undertaken during low water this winter.

Numbers of requests for information regarding fishway construction were received from private individuals as well as from the Newfoundland Government. As complete information as possible, in the light of the department's experience, was furnished to all inquiries.

The practice of receiving monthly reports on the condition of fishways in their districts from fishery overseers has been continued, thus keeping the department in touch with their operation.

Appended hereto is a copy of the report by the Resident Engineer McHugh for the British Columbia Division, covering the work performed during the year ending December 31, 1923.

BRITISH COLUMBIA

(1) REMOVAL OF OBSTRUCTIONS

The various streams from which obstructions have been removed, and the expenditure involved in each case during the year are detailed as follows:—

Deer Passage Creek, Bella Bella District, \$500.—Removal of debris left in stream bed after discontinuance of logging operations, and concentration of reduced summer flow to a single channel.

Gullchuck, Bella Bella District, \$536.—Easing the ascent of a fall approximately 10 feet in height by the blasting of pockets or pools.

Tinkey Creek, Bella Bella District, \$410.—Continuance of the work commenced in the previous year for the purpose of easing the ascent of salmon over numerous rock ledges at low water periods.

Kisimete River, Bella Bella District, \$1,572.—Continuance of the work commenced in the previous year for the purpose of easing the ascent of salmon over falls. Several falls exist in the bed of this stream, one being 12 feet in height.

Kilik Creek, Bella Bella District, \$125.67.—The removal of a jam of spruce roots and logs which effectually closed the mouth of this stream.

Thurston Bay Creek, Upper Valdez Island, \$768.21.—Removal of debris deposited in the stream bed by loggers, and the blasting of boulders and ledge rock to facilitate the ascent of salmon.

Puntledge River, Vancouver Island, \$492.65.—The continuance of the work commenced in the previous year for the purpose of confining the stream, in sections, to a central channel. A large proportion of the volume of this stream, during summer flow, is taken for power development in connection with the works of the Canadian Collieries, Limited. This water is taken from the river at a point approximately half a mile below Comox lake and is returned to the river after running through the turbines some distance below. Portions of the river lying between these two points are of extreme width, and the bed thereof consists of ledges of shelving rock, which, during low water periods, can be crossed without wetting the feet. The excavation of channels for the concentration of water, particularly where abrupt falls exist, then becomes necessary, and it is work of this nature which has in the past been the cause of expenditure on this stream.

Now that the impounding dam at the foot of Comox lake has been rendered passable to salmon by the construction of a fishway in the dam, more work of similar nature on this stream may become necessary from time to time, as the runs of salmon to the lake gradually increase.

This will be more than ever necessary should there be good returns in due time from the planting of sockeye eggs in the Cruikshank river, draining into Comox lake.

Demanuel Creek, Sooke Harbour District, \$237.—Removal of a log jam in the stream bed which effectually held up the passage of salmon to the waters beyond. This work was successfully performed at very little cost, under contract, and salmon are now able to continue their way unmolested to the upper waters.

Kakwiken River, Alert Bay District, \$634.70.—Continuance of the work of easement of the falls located in the bed of this stream performed under the supervision of the overseer of the Alert Bay district, who remarks in his reports upon the efficiency of the work performed.

Owens Bay, Okishollow Channel, Quathiaski District, \$207.75.—The removal of debris let in the stream bed by loggers, and which effectively closed the stream to the further ascent of salmon.

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In addition to the above are several smaller expenditures, as detailed below, each amounting to less than \$100, which have been incurred in various parts of the province and performed under the supervision of the local overseers or guardians. In the majority of these cases the work is straight-forward, requiring nothing but diligent labour in its execution, and unless one of the engineers happens to be in the vicinity at the time such work is being done, it is not generally considered necessary to incur the expense of making a special visit to the ground. The overseer's report being in such circumstances accepted.

Lardeau river.....	\$65 71
Skutz falls.....	5 40
Cameleon Harbour creek.....	55 00
Heydon Bay creek.....	55 00
Quatsi river.....	27 00
Embley lagoon.....	55 00
Little river.....	22 50
Rivers Inlet district.....	45 96

(2) CONSTRUCTION AND MAINTENANCE OF FISHWAYS

Repairs to Meziaden River Fishway, \$6,999.38.—This expenditure was incurred owing to the necessity of reconditioning the fish ladder at this point, through which salmon pass on their journey to the spawning grounds on Meziaden lake (headwaters Naas river).

The fishway was constructed under the supervision of the Public Works Department of the provincial government for this department, ten years ago, and consists of an open cut in the bank of the Meziaden river adjacent to the big falls, through a strata of rock which is overlaid by a heavy bank, some 50 feet high, of hard-pan, gravel and soft sand. At the time of construction this soft material was intended to be held in place by the construction of a facing of logs supporting the hard-pan strata adjoining the rock, having log stretchers penetrating the bank to hold the logs in place.

In the course of time some of these logs began to show signs of rot and commenced to bulge badly in the centre, quantities of soft material from above sliding over the bank and into the fish ladder. Whilst a great proportion of this material was carried away safely by the velocity of the water flowing through the fish ladder, yet a proportion of the boulders which were incorporated therein remained in the fishway, gradually filling the pockets.

In the fall of 1918 it became necessary to insert timber struts to support this skeleton log crib, and since that year further struts have been added from time to time. The necessity for the rebuilding of a more or less permanent structure around the base of this soft material became more apparent each year, until arrangements were completed during the year under review for the work to be done. Three alternative plans, varying in estimated cost, were placed before the department, and it was finally left to the judgment of the engineer in charge to adopt whichever scheme seemed most suitable after arriving on the ground in the spring.

The work was commenced early in June of 1923. All struts and old facing logs were first removed, and approximately 1,000 yards of soft material excavated, and sluiced down the stream, and an entirely new double crib, 120 feet in length and 8 feet in width, and varying from 8 feet to 14 feet in height, was constructed of green sound peeled jack pine. This was loaded with rock, brush and gravel and securely anchored to a solid rock foundation 10 feet wide, both front and rear, with split iron keys. The upper bank was then trimmed to a uniform slope and the excess material disposed of. By the construction of a temporary dam at the mouth of the fishway, the water from the fishway was diverted to the river and all pockets were entirely cleaned of their debris.

This whole work was accomplished under an expenditure of \$500 less than the estimated cost and can be considered as permanent since the life of the crib is conservatively placed at twenty-five years. It might be added that the difficulties of transportation in this part of the country added considerably to the cost of this work, material and supplies having to be taken in over pack-horse trails at heavy expense.

Special trips were made during the year to the following points for the purpose of investigating conditions on streams which had been reported to contain obstructions to the free ascent of salmon: Smiths inlet; Hemming bay (Quathiaski district); Owekano lake (Rivers Inlet district); Nahatlatch river (Fraser River district); Quay river (Bella Bella district); Hells gate (Fraser River district).

The preparation of reports and sketches covering the details thereof where necessary followed immediately on these examinations for further consideration by the department.

APPENDIX 4

REPORTS ON THE C.G.S. "ARLEUX" AND C.G.S. "ARRAS"

REPORT OF CAPTAIN WM. J. MILNE, OF THE "ARLEUX," FOR 1923

The *Arleux* was outfitted and made ready for sea during the first part of April.

On the 22nd she proceeded to the assistance of a French trawler ashore on Thrumcap shoal but did not succeed in refloating her. She then proceeded westward.

May 8, patrolling the bay of Fundy where a large number of craft were fishing for lobsters and scallops off the Digby shore. Quantities of lobsters, under the legal size, which had been caught and concealed were located. On the New Brunswick coast all fish, except gaspereaux, were scarce.

Proceeded to the south shore of Nova Scotia on May 18 to watch the American seiners.

On May 25 we cruised westward, off Sambro, with a large fleet of United States seiners composed of schooners, trawlers and small steamers.

On June 25 the *Arleux* towed a disabled fishing craft into Lunenburg harbour, then went to the assistance of a fishing schooner ashore in that harbour and towed her afloat.

We then proceeded to the bay of Fundy and saw several craft scallop fishing outside of territorial waters. These boats were making good catches. We patrolled the bay searching the shores for illegal lobster fishing and other breaches of the law.

Arrived in Halifax, after patrolling the Atlantic coast, on July 21 to have the boiler welded and prepare for a cruise under the direction of the Biological Board.

On August 3 Dr. Huntsman and party came on board and we proceeded to cruise taking plankton observations, tidal surveys, etc., off the coasts of Nova Scotia, Labrador and Newfoundland. These observations were completed on the 21st of September and we proceeded to St. Andrews calling at Canso, Halifax and Lockeport on the way.

We reached St. Andrews on September 26, and landed the Biological officers and their apparatus, and then proceeded to fisheries protection duty, patrolling the bay of Fundy, watching the scallop fishermen and sardine carriers and searching for new scallop beds.

On October 13 off Briar island we proceeded to the assistance of the *Aberdeen* ashore on Seal island

We assisted in the international fishing schooner race off Halifax on October 30 and then followed the fall fleet of American seiners. The latter left for home on November 12.

We then proceeded to the entrance to the bay of Fundy and found a new scallop bed off the Lurcher.

Returning to the Atlantic coast and watching American fishermen until December 7, when we proceeded to Canso to assist the fleet of small vessels and boats fishing out of that port.

Haddock fishing was continued until January 30 out of Canso, the latest date recorded at that point.

On February 5 the *Arleux* was placed in winter quarters at Lunenburg.

GENERAL

During the season the shores of the western district were searched for illegal lobster fishing. Fewer instances of this were found than in the previous year.

Good catches of scallops were made by boats fishing outside of territorial waters during the close season in the bay of Fundy. We steamed amongst these boats keeping them the required distance from shore.

Sardines were scarce, especially late in the year off the New Brunswick shores. A number of lobster fishermen in the western part of Nova Scotia depend on the fall run of sardines for their lobster bait. Should this supply prove inadequate bait could be obtained by sending craft to Browns Bank to seine or net herring in the early spring as numerous herring schools are located there then.

The *Arlaux* steamed 13,621 miles, and was under weigh 1,700 hours during the season.

REPORT OF CAPT. C. BARKHOUSE, OF THE *Arras* ON THE MACKEREL SCOUTING
DURING THE SPRING OF 1923

May 13.—*Arras* has located mackerel 25 miles south of cape Sable. The fish are approaching the coast from the southwest. Will endeavour to follow movements of fish to-night.

May 13.—*Arras* on mackerel scouting duties noon. Position fifteen miles south cape Roseway. No mackerel sighted yet but prospect good. Mackerel feed showing on water. Weather moderate. Southwest wind with heavy south swell.

May 14.—*Arras* position 8 p.m. 10 miles south cape Negro on scouting duties.

May 15.—*Arras* at Shelburne. Weather unfit for scouting and returned to harbour. Will proceed soon as weather clears.

May 16.—Twenty miles southeast of cape Sable. Increasing south winds and overcast. Returning to Sand point until weather clears. No fish sighted.

May 17.—*Arras* at Shelburne. Dense fog on coast. Will proceed scouting soon as weather clears.

May 18.—*Arras* position 2 p.m. to-day, 25 miles south southwest cape Sable. Weather fine. Good prospects for mackerel.

May 19.—*Arras* position noon to-day, 40 miles southeast by south from cape Sable. Have located large body of mackerel between Browns and Little LaHave banks. These fish are moving slowly northeast towards coast Nova Scotia.

May 20.—*Arras* position 10 a.m. western side of Roseway bank. Increasing easterly winds. Unfit for scouting work. Proceeding to Shelburne.

May 21.—*Arras* at Shelburne. Weather unfit for scouting. Proceeding when weather moderates.

May 22.—*Arras* position noon 18 miles southeast cape Negro. Small lots of mackerel showing, going east. Spoke Lockeport netter Grace MacKay and reported taking 30 large mackerel last night. Also netter Nellie Banks of Lockeport reported 11 large mackerel. Fish now 15 to 20 miles off coast.

May 23.—Two-thirty p.m. on western edge Roseway bank. No mackerel sighted. Weather conditions unfavourable.

May 24.—Ten a.m. off Little Hope. No mackerel sighted.

May 25.—*Arras* position 6 p.m. south from Little Hope. No fish sighted. American mackerel seiners have arrived on our coast. Two American beam trawlers fitted with purse seine are with fleet.

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- May 26.—*Arras* position 10 a.m. 15 miles south cape Roseway. Plenty mackerel showing and going east. Lockeport netters Grace MacKay reports taken 400 large mackerel last night and Nellie Banks taken 1,000 large mackerel. These fish taken 15 miles south Roseway.
- May 28.—Eight-thirty a.m. 17 miles southeast from Lockeport located large body mackerel going slowly eastward. Weather fine for observation.
- May 28.—Position 4 p.m. south of Liverpool. No fish sighted this afternoon.
- May 29.—*Arras* 12 miles southeast Little Pope. Increasing northeast winds and misty weather. Unfit for scouting. No mackerel sighted Liverpool to-night.
- May 30.—*Arras* Liverpool coaling ship. Proceed scouting when completed.
- June 1.—The large body of mackerel that is working east along coast is now located five miles south cape LaHave. Fish are from three to ten miles off the coast. Small schools showing on radius of seven miles.
- June 1.—One p.m. five miles southwest Betty's island. No mackerel sighted since last report. American fleet bound to Prospect for shelter.
- June 2.—*Arras* at Halifax. Weather unfit for scouting. Will complete with stores before sailing.
- June 5.—*Arras* position 6 p.m. fifteen miles west from Sambro. No fish sighted to-day. Weather calm and hazy.
- June 6.—*Arras* position 6 p.m. six miles west from Bettys island. Weather conditions light east winds and light fog. No fish sighted.
- June 7.—*Arras* position six p.m. four miles southwest from Beaver island. Small bunches of mackerel showing and going east close along the coast. Ten American seiners in sight. Going east.
- June 6.—Eleven-thirty last night sighted three large schools mackerel five miles south Cross island and moving slowly eastward. The main body of fish are still on west coast being halted in their easterly course by east winds and cold currents which is setting west along coast. American seiners are scattered along coast from LaHave to Sambro.
- June 8.—*Arras* position 4 p.m. three miles southwest from White island. Small bunches of fish going east. Thirteen American seiners holding close to three mile limit and we are in close touch with them.
- June 9.—Anchored at Fort Dufferin with eleven American seiners. Proceeding soon as weather clears.
- June 11.—*Arras* position 8.30 a.m. four miles south Beaver island. No fish sighted. Weather unfit for scouting. All American seiners returning Beaver harbour.
- June 12.—Eleven forty-five a.m. sighted large school mackerel two miles off White islands 12.20 p.m. Sighted small schools mackerel three miles south southwest from White islands. Fish moving very fast east and keeping close to shore. American seiners very active close to three mile limit.
- June 12.—*Arras* position 6 p.m. five miles off Liscombe. No fish sighted since last report.
- June 13.—Two-thirty p.m. sighted two large schools mackerel two and a half miles south from Whitehead light. Fish showing up good and moving east close along coast. Large catches of mackerel in nets off Country harbour. This morning one boat reports 1,600 fish.
- June 13.—*Arras* position 7 p.m. five miles southeast from Whitehead. Large body of mackerel going east towards Cape Breton coast.
- June 14.—Ten a.m. five miles south Canso. Large body of mackerel moving towards Cape Breton coast. Proceeding east towards Cape Breton coast.
- June 17.—*Arras* position 8 p.m. three miles south from Whitehead. No fish sighted to-day. We are cruising towards Cape Breton coast.

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- June 18.—*Arras* position 3 p.m. three miles south from Scattarie, Cape Breton.
No fish sighted to-day.
- June 19.—*Arras* position 4.30 p.m. four miles southeast from Ingonish. Several small schools mackerel sighted going north.
- June 20.—*Arras* at Magdalen island. Weather conditions unfit for scouting.
No mackerel sighted to-day.
- June 22.—*Arras* at Souris. Weather unfit for scouting. Proceeding to-morrow morning.
- June 23.—*Arras* at Pictou. Proceeding Monday to south coast, Cape Breton.
- June 25.—*Arras* proceeding Halifax. Arriving to-morrow morning weather permitting.
- June 26.—*Arras* arrived Halifax this morning.

APPENDIX 5

The following is a statement of the different kinds of licenses issued by the different Inspectors, during the 1923-24 Season:—

MAGDALEN ISLANDS, QUEBEC—Inspector S. T. GALLANT

Kind of Licenses—	Number of Licenses Issued
Lobster fisherman's licenses.....	772
Lobster packing licenses.....	24
Lobster packing extensions.....	25
Herring trap-net licenses.....	23
Herring seine licenses.....	24
Smelt bag-net licenses.....	4
Receipt books.....	35
	<hr/> 847

PRINCE EDWARD ISLAND—Inspector S. T. GALLANT

Lobster fisherman's licenses.....	2,399 (1 cancelled)
Lobster packing licenses.....	197
Lobster packing extensions.....	103 (1 cancelled)
Cannery licenses.....	6
Quahaug fishery licenses.....	5
Oyster fishery licenses.....	164
Smelt gill-net licenses.....	307
Smelt bag-net licenses.....	270
Trap-net fishing licenses.....	3
	<hr/> 3,351 (1 cancelled)

MANITOBA—Inspector J. B. SKAPTASON

Commercial sturgeon fishery licenses.....	183
Domestic sturgeon fishery licenses.....	4
Angling permits for non-residents.....	37
Special fishery licenses.....	2,364 (3 cancelled)
Settler's permits.....	817
Receipt books.....	2,497 (3 cancelled)
	<hr/> 3,405 (3 cancelled)

SASKATCHEWAN—Inspector G. C. McDONALD

Commercial sturgeon fishery licenses.....	5
Domestic sturgeon fishery licenses.....	9
Commercial and fisherman's licenses.....	582
Domestic fishery licenses.....	80 (1 cancelled)
Indian and Half-breed permits.....	697
Receipt books.....	277
	<hr/> 1,373 (1 cancelled)

ALBERTA—Inspector R. T. RODD

Special angling permits.....	3,281 (2 cancelled)
Commercial and fisherman's fishery licenses.....	647
Domestic fishery licenses.....	131 (18 cancelled)
Indian and Half-breed permits.....	340
Receipt books.....	301
	<hr/> 4,399 (20 cancelled)

NOVA SCOTIA—DISTRICT No. 1—Inspector A. G. McLEOD

Kind of licenses— <i>Continued</i>	Number of licenses issued
Lobster fisherman's licenses.....	2,190
Lobster packing licenses.....	55
Lobster packing extensions.....	38
Angling permits.....	28
Fish cannery.....	1
Salmon trap-net, pound-net or weir.....	157
Certificates under Sec. 63.....	50
Special fishery licenses for trap-net fishing.....	38
Salmon gill-net or drift-net licenses.....	28
^a Herring weir licenses.....	5
Smelt bag-net licenses.....	40
Smelt gill-net licenses.....	222
Oyster fishery licenses.....	91
Receipt books.....	6
	<hr/> 2,855

NOVA SCOTIA—DISTRICT No. 2—Inspector D. H. SUTHERLAND

Lobster fisherman's licenses.....	3,072 (2 cancelled)
Lobster packing licenses.....	81 (2 cancelled)
Lobster packing extensions.....	52 (1 cancelled)
Angling permits.....	28
Fish cannery.....	5
Salmon trap-net, pound-net or weir.....	120
Certificates under Sec. 63.....	102
Special fishery licenses for trap-net fishing.....	139
Salmon gill-net or drift, net licenses.....	177
Herring weir licenses.....	12
Smelt bag-net licenses.....	212
Smelt gill-net licenses.....	266
Oyster fishery licenses.....	89 (1 cancelled)
Receipt books.....	160 (2 cancelled)
Shad gill-net or drift-net licenses.....	6
Drag-seine licenses.....	181
	<hr/> 4,388 (5 cancelled)

NOVA SCOTIA—DISTRICT No. 3—Inspector H. H. MARSHALL

Lobster fisherman's licenses.....	3,595
Lobster packing licenses.....	32
Lobster packing extensions.....	21
Angling permits.....	364 (3 cancelled)
Fish cannery.....	7
Salmon trap-net, pound-net or weir.....	53
Certificates under Sec. 63.....	160 (1 destroyed)
Special fishery licenses for trap-net fishing.....	189 (1 cancelled)
Salmon gill-net or drift-net licenses.....	229
Herring weir licenses.....	70 (1 cancelled)
Smelt bag-net licenses.....	22
Smelt gill-net licenses.....	70
Receipt books.....	34
Salmon net permits.....	13
Scallop fishery.....	224 (3 cancelled)
Lobster pound licenses.....	5
Lobster pound certificates.....	107
Lease of Long Beach pond.....	1
	<hr/> 4,873 (8 cancelled)

NEW BRUNSWICK—DISTRICT No. 1—Inspector J. F. CALDER

Lobster fisherman's licenses.....	653
Fish cannery licenses.....	6
Shad gill-net or drift-net licenses.....	46
Special permit to dig soft-shell or long-neck clams.....	120
Herring weir licenses.....	552
Salmon gill-net or drift-net.....	77
Certificates under Sec. 63.....	5
Lobster pound licenses.....	5
Lobster pound certificates.....	239
Scallop fishery licenses.....	23
Lease of Dark Harbour fishing privileges.....	1
	<hr/> 1,482

^a Gaspereau and alewife weirs were issued on herring weir licenses.

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NEW BRUNSWICK—DISTRICT No. 2—Inspector R. CROCKER

Kind of Licenses— <i>Concluded</i>	Number of licenses issued
Lobster fisherman's licenses.....	2,400
Fish cannery licenses.....	1
Shad gill-net or drift-net.....	29
Salmon gill-net or drift-net.....	51
Certificates under Sec. 63.....	154
Lobster pound licenses.....	5 (1 cancelled)
Lobster pound certificates.....	267 (1 cancelled)
Lobster packing licenses.....	183
Lobster packing extensions.....	62
Quahaug fishery licenses.....	149
Gaspereau pound-net or trap-net....	50
Salmon trap-net, pound-net or weir.	375
Salmon net permits.....	43
Smelt bag-net licenses.....	4,423
Smelt gill-net licenses.....	162
Bass fishery licenses.....	98
Oyster fishery licenses.....	647
	<hr/> 8,616 (1 cancelled)

NEW BRUNSWICK—DISTRICT No. 3—Inspector H. E. HARRISON

Shad gill-net or drift-net licenses.....	219
Salmon gill-net or drift-net.....	105
Salmon net permits.....	129
Bass fishery licenses.....	20
Sturgeon fishery licenses.....	11
Smelt gill-net licenses.....	1
	<hr/> 485

BRITISH COLUMBIA—Inspector J. A. MOTHERWELL

Fish cannery licenses.....	18 (2 cancelled)
Special angling permits.....	5
Salmon trap-net licenses.....	6
Salmon purse seine licenses.....	196 (2 cancelled)
Cod fishery licenses.....	378
Assistant operator of salmon purse or drag seine.....	881 (17 cancelled)
License to assistant in a boat used in operating a salmon gill-net or drift-net....	1,011 (19 cancelled)
Indian permits.....	153
Salmon trolling licenses.....	1,446 (1 cancelled)
Salmon fishery licenses.....	3,755 (1 cancelled)
License to a captain of salmon seine boat.....	69 (11 cancelled)
Salmon drag-seine licenses.....	31
Grayfish fishery licenses.....	47
License to a person engaged in cold storage or fish packing to buy fresh salmon from fishermen.....	162
Salmon cannery licenses.....	64 (4 cancelled)
Reduction works licenses.....	4
Boat license to buy fresh salmon from fishermen.....	177 (1 cancelled)
License to a captain of a herring seine boat.....	30
Fishery licenses for gill-nets, drift-nets or drag-seine operated in conjunction with power boats.....	286 (1 cancelled)
Herring purse seine licenses.....	41 (1 cancelled)
Herring drag-seine licenses.....	3
Smelt or sardine fishery licenses.....	53 (1 cancelled)
Sturgeon fishery licenses.....	4
Herring or pilchard gill-net or drift-net licenses.....	32
Crab fishery licenses.....	124
Whale factory licenses.....	3
Metal tags.....	1,613
Special seal destruction permits.....	15
Salmon curing licenses.....	49
Herring curing licenses.....	30
	<hr/> 10,687 (61 cancelled)

YUKON TERRITORY

Special fishery licenses.....	23
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MODUS VIVENDI LICENSES

Atlantic coast.....	88 (1 cancelled)
Pacific coast.....	212 (1 cancelled)
Total number licenses issued.....	<hr/> 47,084 (102 cancelled)

APPENDIX NO. 6

List of United States Fishing vessels which entered Canadian Ports on the Atlantic Coast during the year ended December 31, 1923

Name of Vessel	Tonnage	Number of men in crew	Number of times entered	Reasons for Entry	Quantity of fish landed
Arthur James.....	95	19	1	Shelter.....	cwt.
Aviator.....	210	9	4	“ for men.....	
Avalon.....	69	21	8	“ bait, ice.....	
Angeline C. Nunan.....	58	21	1	“	
Aeolus.....	16	9	17	“	6 sword-
American.....	63	23	10	“ bait, ice.....	fish.
Acushla.....	70	23	7	“ repairs.....	
Bay State.....	81	27	15	Repairs, supplies, shelter, bait, ice, dories, crew, trawl, gear.	
Benjamin M. Wallace....	49	19	2	To ship men, shelter.....	
Bethume.....	66	17	1	Shelter.....	
Constellation.....	89	19	2	“	
Catherine.....	77	27	8	Ice, bait, shelter.....	
Columbia.....	96	28	3	Dories, crew, shelter.....	
Corinthian.....	97	23	4	Dories, repairs, shelter.....	
Catharine Burke.....	68	19	6	Shelter, water.....	
Commonwealth.....	93	25	4	Dories, discharge one man, repairs, supplies.	
Coat.....	169	21	3	Repairs.....	
Camben.....	97	24	1	Shelter.....	
Cool.....	169	14	1	Shipping men.....	
Dawn.....	79	25	7	Shelter, engine repairs, oil.....	
Elizabeth W. Nunan....	48	17	2	Shelter.....	
Elizabeth Howard.....	90	22	9	“ bait, supplies, sick man, ice..	25
Evelyn & Ruth.....	38	7	2	Shipping fish.....	99
Elizabeth & Ruth.....	38	20	2	Shelter.....	
Ellen T. Marshall.....	75	23	12	“ salt, dories, bait.....	
Ethel B. Penny.....	59	19	4	“ ship's log.....	
Elk.....	66	19	11	“ bait, ice.....	
Edith C. Rose.....	70	23	5	Bait, repairs, shelter, sick man.....	
Elmer E. Gray.....	71	19	5	Shelter, oil, bait, supplies.....	
Elsie G. Silva.....	50	19	1	“	
Flora L. Oliver.....	59	27	12	Shelter, exporting fish, bait, license, supplies, dories, ice.	60
F. L. Chelwina.....	56	19	1	Supplies.....	
Frances S. Grueby.....	94	25	3	Shelter, food.....	
Governor Mar-shall.....	60	23	9	Ice, supplies, bait, shelter.....	
Grand Marshall.....	70	25	13	Bait, ice, dories, sick man, shelter..	
Gertrude de Costa.....	61	19	5	Water, provisions, shelter.....	
Governor Foss.....	88	24	4	Crews, water, shelter.....	
Good Luck.....	55	19	12	Shelter, supplies, water.....	
Harmony.....	66	23	13	Shelter, bait, oil, men, ice.....	
Henry Ford.....	90	25	13	Ice, supplies, shelter, bait, men, food	6
Hazel R. Hines.....	79	21	2	“	
Hortense.....	43	19	1	Shelter.....	
Helena.....	40	13	1	Repairs	
Helja Silva.....	77	21	4	Shelter.....	
Hesperus.....	79	25	7	Repairs, sick man, shelter, dories, water, ice supplies.	44
Herbert Parker.....	78	23	9	Dories, supplies, bait, oil, shelter....	
Henrietta.....	62	19	2	Shelter.....	
Harvard.....	72	19	4	Gas, shelter, supplies.....	
Hope Leslie.....	19	11	1	Shelter.....	
Imperator.....	79	23	6	Shelter, bait, ice land fish.....	13
Joffre.....	80	25	3	Ice, supplies, land fish, bait.....	50
John J. Fallon.....	60	19	5	Ice, bait, shelter.....	
Judique.....	89	6	1	Shelter.....	
Killarney.....	73	22	10	Shipping men, shelter, repairs.....	
Lucia.....	43	17	7	Shelter.....	
Loon.....	169	21	5	Bunker coal, repairs to engine, shipping men.	
L. A. Dunton.....	94	23	4	Sent sick man home, shelter, water, provisions.	

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LIST of United States Fishing vessels which entered Canadian Ports on the Atlantic Coast during the year ended December 31, 1923—*Concluded*

Name of Vessel	Tonnage	Number of men in crew	Number of times entered	Reasons for Entry	Quantity of fish landed
					cwt.
Lark	121	23	2	Shelter.....	
Laura Goulart	73	21	1	"	
Mary T. Fallon	48	19	1	Ice, shelter, repairs.....	
Mayflower.....	113	25	18	Bait, ice, supplies, shelter, bait reports, salt.	
Mary F. Curtis.....	65	21	25	Ice, trawl gear, bait, storing bait, men, shelter, salt, water, oil.	
Morning Star.....	85	19	10	Shelter, repairs, ice.....	
Mary E. O'Hara....	49	22	10	"	
Mildred Robertson.....	73	19	5	Master burned by explosion, bait, land fish, landed sick man, shipped one.	41
Medrie.....	189	21	2	Repairs.....	
Nirvana..	50	12	4	Shelter, shipped a man.....	
New Dawn.....	20	9	4	"	
Natalie Hammond.....	51	21	4	"	
Orion	39	13	2	Shelter.....	
Oretha F. Spinney.....	87	25	4	Ice, bait, supplies, dories, landed fish, man, transhipped catch.	111
Osprey.....	169	23	4	Bunker coal, repairs.....	
Pioneer....	53	17	3	Water, shelter.....	
Pilgrim.....	63	18	2	Ice, bait, landed man.....	
Progress.....	78	19	1	Shelter.....	
Phillip P. Mantha	43	17	2	"	
Plover..	208	21	4	To land sick men.....	
Progress....	61	23	6	Repairs, shelter, dory, supplies.....	
Pollyana.....	66	19	3	Bait, shelter.....	
Rex.....	75	23	8	Ice, shelter, repairs, supplies, bait.	
Ruth & Margaret..	77	23	4	Ice, bait, sick man.....	
Ralph Brown...	67	20	3	Shelter.....	
Republic.....	48	19	13	Ice, supplies, shelter, landing halibut, bait, dories.	82
Ruth	49	20	6	Shelter, supplies.....	
Ripple	96	20	1	To land sick men.....	
Sunapee.....	18	9	8	Supplies, shelter.....	
Surf	119	16	14	"	
Swell...	119	24	6	Shelter.....	
Stillette..	91	19	4	"	
Shianne.....	21	5	1	"	
Saturn....	137	22	1	In for 2 men.....	
Snipe...	208	19	1	Supplies, crew.....	
Shamrock	68	27	1	Shelter.....	
S. A. Denton	94	23	1	Bait	
T. M. Nicholson	90	17	9	Ice, bait, shelter, salt, men.....	
Thomas S. Gorton.....	92	23	8	Bait, ice, discharging men, shelter..	
Thelma.....	28	12	2	Shelter.....	
Teazer.....	59	22	2	" bait.....	
Tern.....	208	21	3	Land sick men, ship men.....	
Waltham.	44	20	2	Shelter.....	
Yankee.....	96	25	3	"	

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LIST of United States Fishing vessels which entered Canadian Ports on the
Pacific Coast during the year ended December 31, 1923

Name of Vessel	Tonnage	Number of men in crew	Number of times entered	Reasons for Entry	Quantity of fish landed
					cwt.
Arctic.....	29	6	1	Land fish.....	1,020
Adeline.....	6	2	1	"	280
Anna J.....	22	5	2	" bait and ice.....	2,360
Alaska.....	44	15	1	"	4,100
Augusta.....	19	4	1	"	780
Arcade.....	14	5	13	" bait, ice.....	80
Atlas.....	31	7	1	"	1,040
Atlantic.....	25	11	2	"	2,280
Albatros.....	40	13	6	" bait, ice.....	1,200
Alter.....	43	15	1	"	7,560
Arctic.....	37	6	1	"	320
Aberdeen.....	29	5	1	Shelter.....	
Alki.....	4	2	1	Land fish.....	20
Arctic.....	4	3	1	Broken machinery.....	
Alfa.....	4	3	1	"	
America.....	25	11	10	Land fish, bait, ice.....	800
A. 125.....	2	1	1	Ice and bait.....	
Actor.....	7	1	2	"	
Antler.....	22	5	5	" land fish.....	660
Aurora.....	16	5	16	Supplies, bait and ice.....	
Alice.....	21	3	1	Bait.....	
Alfa.....	12	5	7	" ice.....	
Agnes.....	17	5	6	Bait and ice.....	
Alice B.....	13	5	11	" land fish.....	220
Active.....	4	2	1	"	
Alf.....	4	1	2	"	
Baltic.....	20	4	1	Land fish.....	740
Brothers.....	13	5	1	"	1,260
Bravo.....	10	3	1	"	1,040
Bringold.....	12	5	1	"	880
Bolinder.....	5	1	2	Supplies, bait.....	
Beaver.....	17	5	13	Bait and ice.....	
Bonnie Lass.....	2	2	1	Supplies.....	
Commonwealth.....	60	17	2	Land fish, ice and bait.....	2,100
Constitution.....	57	9	1	"	3,080
Carolan.....	18	3	1	"	600
Corona.....	19	11	8	" bait and ice.....	680
Confidence.....	22	3	1	Supplies.....	
California.....	20	5	5	Land fish, bait, ice.....	720
Chimera.....	9	3	7	"	380
Chancellor.....	13	5	6	"	840
Crescent.....	8	4	2	" ice and bait.....	1,200
Cape Clear.....	13	4	8	"	360
Corsair.....	4	3	1	Shelter.....	
Cora.....	4	3	1	Land fish.....	220
Circle H.....	4	1	1	Supplies.....	
Cora.....	9	5	1	"	
Carlisle.....	10	2	1	Land fish.....	200
Cedric.....	19	4	1	"	200
Chatham.....	24	5	1	Ice and bait.....	
Christina.....	4	1	5	Supplies, land fish, unknown.....	24
Ceta H. 280 H.....	4	1	1	Supplies.....	
125 C. A.....	2	1	1	"	
Clarion.....	15	4	1	Bait and ice.....	
Dora H.....	15	5	5	"	
Defence.....	20	5	1	Land fish.....	1,680
Don Carlos.....	8	3	1	"	120
Discovery.....	10	4	1	"	520
Daily.....	26	6	1	"	2,220
Democrat.....	27	6	1	"	1,700
Director.....	14	5	2	"	260
Doll.....	4	1	1	Supplies.....	
Dependent.....	4	3	1	Land fish.....	80
Dreamer.....	25	2	1	Shelter.....	
Evolution.....	17	5	10	Land fish, ice and bait, engine trouble.	240
Eidsvold.....	15	5	11	Land fish, bait, for orders, fresh water.	1,000

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LIST of United States Fishing vessels which entered Canadian Ports on the Pacific Coast during the year ended December 31, 1923—*Continued*

Name of Vessel	Tonnage	Number of men in crew	Number of times entered	Reasons for Entry	Quantity of fish landed
Eastern Point	4	3	1	Land fish.....	900
E. Neilson.....	15	4	6	" ice and bait	500
Eagle	9	3	2	"	780
Eureka.....	4	2	1	"	40
Embla.....	4	2	1	"	40
Emblem.....	4	2	1	"	100
Eagle.....	67	17	1	"	1,660
Emma.....	17	2	1	Ice and bait.....	
Enterprise.....	8	3	10	Bait and ice.....	
Erin.....	28	4	1	"	
Eleanora.....	16	5	6	"	
Famous	9	3	1	Engine trouble	
Forward.....	18	5	4	Land fish, ice and bait	1,860
Fairway.....	19	5	5	"	1,480
Fremont.....	10	4	8	"	260
Fortuna.....	21	5	12	" for orders.....	60
Flower.....	3	2	1	"	20
Faith.....	7	3	10	" bait and ice.....	60
Fram.....	4	3	1	"	100
Flattery.....	10	3	1	"	60
Ford.....	4	3	1	"	140
Flora.....	4	3	2	" bait and ice.....	140
Flamingo.....	13	5	6	Bait and ice.....	
F. C. Hergert.....	15	5	8	"	
Gladstone.....	23	6	1	Land fish.....	1,960
Gony.....	12	5	3	" bait and ice, stores.....	280
Get the Hook.....	10	1	1	"	20
Glacier.....	12	4	1	"	760
Grayling.....	16	5	1	"	620
Groth.....	7	3	1	"	360
Grechen.....	7	3	2	"	240
Good-Will.....	4	4	1	Supplies.....	
Gold Fish.....	4	2	1	Land fish.....	20
Genevieve.....	4	2	1	"	40
G. A. 883.....	3	1	2	Ice and bait, supplies.....	
Grant	5	2	1	Land fish.....	160
G. A. 473.....	4	2	1	Supplies.....	
Helgeland.....	56	15	1	Land fish.....	7,380
Harding.....	19	5	5	" ice and bait.....	1,060
Happy.....	12	4	2	"	760
Hilda.....	10	3	2	"	11,960
Hazel.....	7	3	2	"	360
Hazel H.....	24	5	7	" bait and ice	1,440
Hazel L	9	3	2	Shelter, ice and bait	
Hi Gill.....	11	4	3	Land fish, bait, engine trouble.....	1,120
Hilda.....	16	3	1	"	100
Hanna.....	11	8	4	Shelter, ice and bait	
Harvestor.....	15	5	2	Land fish, bait and ice.....	100
Hiawatha.....	3	3	1	Shelter.....	
Hurget.....	15	5	1	Ice and bait.....	
Imperial.....	35	5	1	Land fish.....	1,240
Ietus.....	3	3	1	Shelter.....	
Inverness.....	16	2	1	"	
Jennie F. Decker.....	16	8	15	Bait and ice.....	
Judith.....	5	3	8	" land fish	8
June.....	15	5	1	Land fish.....	900
J. P. Todd I.....	4	2	1	"	140
J. P. Todd II.....	12	5	1	"	200
Jennie.....	10	5	1	"	40
Jeanette.....	6	1	1	"	40
Kennebec.....	3	3	1	"	100
Kodiak.....	38	13	6	Engine trouble, land fish, ice and bait	2,280
Kanatak.....	38	7	1	Land fish.....	840
K. 377.....	4	2	1	"	60
Katella.....	16	6	17	Stores, bait	
LaPaloma.....	14	11	9	Land fish, ice and bait.....	160
Lenor.....	14	4	1	"	480
Lancing.....	20	4	1	"	820

LIST of United States Fishing vessels which entered Canadian Ports on the Pacific Coast during the year ended December 31, 1923—*Continued*

Name of Vessel	Tonnage	Number of men in crew	Number of times entered	Reasons for Entry	Quantity of fish landed
					cwt.
Lebanon.....	14	5	10	" ice and bait, water and towing Tillicum.	100
Lincoln.....	10	4	1	"	880
Lincoln.....	23	6	5	" ice and bait.....	2,060
Lituya.....	30	11	2	" "	1,480
Lincoln.....	4	2	1	"	280
Liberty.....	17	7	1	"	640
Lief II.....	21	3	1	"	360
Liberty.....	4	1	1	Ice and bait.....	
Lite H. 280.....	4	1	1	"	
Louis.....	4	2	1	Land fish.....	60
Lervis II.....	8	3	1	Ice and bait.....	
Leona.....	3	1	1	Supplies.....	
775 L.....	3	3	1	"	
681 L.....	2	4	1	"	
972 L.....	5	1	1	"	
Laurel M.....	5	3	1	Water.....	
Lincoln.....	9	5	1	"	
Louise.....	16	6	17	Bait and ice.....	
Laura.....	7	3	5	"	
Liberty.....	44	16	4	"	
Mermaid.....	19	5	7	Land fish, bait and ice.....	460
Mildred 13.....	19	5	12	" bait.....	380
Mars.....	9	4	2	" water.....	420
Mira.....	7	3	1	"	640
Mildred II.....	31	6	3	" bait and ice.....	1,520
Marie M.....	5	2	3	"	102
Magnolia.....	25	4	1	"	240
Madeline J.....	21	5	10	" ice and bait.....	140
Majestic.....	33	7	1	"	2,800
Mary G.....	4	2	3	Supplies, ice and bait, water.....	
Muzon.....	19	4	1	Ice and bait.....	
M. & K.....	4	2	3	Land fish, bait and ice.....	10
Mary.....	16	8	11	Bait, ice.....	
Myrtle.....	9	4	15	"	
Myron.....	2	2	1	Supplies.....	
M. 935.....	5	5	1	"	
M. 147.....	4	5	1	"	
Mary.....	11	8	1	Bait and ice.....	
Myrtle.....	19	3	1	"	
Nomad.....	15	5	10	Land fish, for orders, engine trouble, bait, ice.	450
National.....	20	6	8	Land fish, ice and bait.....	1,480
Norland.....	19	6	1	"	420
North.....	9	5	9	" bait and ice.....	200
Norma.....	9	3	1	"	880
Norma.....	6	3	1	"	60
Neptune.....	6	3	1	"	140
Nesmar.....	2	2	1	"	20
NeLu.....	4	2	1	"	40
North Light.....	13	3	2	Shelter, water.....	
New England.....	70	28	1	Land fish.....	1,540
Nelson.....	15	4	1	Ice and bait.....	
Ouah.....	18	5	6	Land fish, ice and bait.....	640
Omancy.....	34	12	3	" for orders, bait and ice...	3,400
Orient.....	48	15	4	" bait and ice.....	301
Pelican.....	17	4	4	" ice and bait.....	900
Pioneer.....	48	15	1	"	5,680
Presho.....	14	5	4	" bait and ice.....	440
Pioneer III.....	26	5	9	"	1,500
President.....	24	6	6	"	1,240
Panama.....	34	13	3	" ice and bait.....	3,800
Pirate.....	20	3	1	"	200
Polaris.....	45	15	2	" bait and ice.....	2,560
Petrel.....	67	7	1	Land sick man.....	
Pearl F.....	7	2	1	Ice and bait.....	
Primrose.....	4	1	3	Land fish, bait and ice.....	15
Pershing.....	18	5	12	Bait, ice.....	

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LIST of United States Fishing vessels which entered Canadian Ports on the Pacific Coast during the year ended December 31, 1923—*Continued*

Name of Vessel	Tonnage	Number of men in crew	Number of times entered	Reasons for Entry	Quantity of fish landed cwt.
Prosperity.....	25	6	4	"	
Republic.....	51	14	1	Land fish.....	8,040
Reliance.....	11	5	5	" for orders.....	1,240
Reliance No. 1.....	19	5	2	" ice and bait.....	1,980
Reliance.....	14	4	1	"	420
Reliance.....	8	3	1	"	880
Rolfe.....	10	5	1	"	1,380
Restitution.....	24	5	9	" ice and bait, supplies.....	1,100
Roald Amunsden.....	16	6	1	"	1,800
Rosario.....	16	5	8	" bait and ice.....	180
Rambler.....	10	3	2	" supplies.....	60
Rival.....	4	3	1	"	80
Raven.....	4	2	1	"	300
Reform.....	4	3	1	"	240
Royal.....	15	5	6	" ice and bait.....	540
Ramier.....	4	3	1	"	360
Radio.....	63	16	1	"	3,620
Ruth M.....	5	1	2	Supplies.....	
Rolfe.....	4	1	1	Land fish.....	8
Roosevelt.....	13	5	11	Bait.....	
Sunset.....	37	8	1	Land fish.....	340
Seymour.....	44	16	2	" bait and ice.....	1,020
Sunland.....	26	4	1	Land fish.....	400
Success.....	4	3	1	"	520
Sirius.....	17	4	1	"	360
Senator.....	11	6	1	"	2,320
Sitka.....	50	15	1	"	3,260
Summer.....	34	13	1	"	3,280
Secla.....	18	2	1	Shelter.....	
Seattle.....	55	15	3	Land fish, ice and bait.....	2,800
Scandia.....	76	17	1	"	5,080
Sadie K.....	13	5	6	" ice and bait, engine trouble	880
Sherman.....	18	5	1	"	2,060
Samson.....	7	3	1	"	180
Star.....	12	4	1	"	920
Scout.....	4	2	1	"	260
Star.....	7	4	3	" ice and bait.....	180
Sentinel.....	21	6	1	"	1,360
Snowir.....	8	2	1	"	80
S. & S.....	4	3	1	"	180
Sea Lion.....	6	2	5	" unknown, bait and ice.....	25
Sammy.....	8	3	15	Bait and ice.....	
S.F. 680 L.....	3	2	1	Supplies.....	
Solo.....	2	2	1	"	
Spencer.....	17	5	6	Bait, engine trouble.....	
Superior.....	16	5	12	Bait and ice.....	
Swift.....	7	2	3	"	
Siloam.....	16	5	2	"	
Tom Boy.....	5	4	1	Shelter.....	
Tyce.....	12	4	1	Land fish.....	1,120
Tom & Al.....	57	15	1	"	5,360
Tahoma.....	18	6	2	" ice and bait.....	2,560
Tordenskjold.....	57	13	1	"	4,140
Texas.....	16	5	4	" bait and ice.....	200
Thelma.....	32	5	5	" ice and bait.....	460
Tatoosh.....	21	6	1	"	1,960
Tillikum.....	21	5	13	" unknown, engine trouble,	740
				Water.....	
Trio.....	19	5	3	Land fish, ice and bait.....	260
Teddy, J.....	13	4	1	"	1,320
T. 965.....	4	1	1	"	40
Tarembo.....	12	2	4	" bait.....	120
Uranus.....	15	6	3	" ice and bait.....	1,440
Unimak.....	10	3	1	"	520
Ure.....	5	1	1	Water.....	
Vivian.....	9	3	1	Land fish.....	580
Vansee.....	43	10	1	"	6,100
Valorous.....	21	4	1	"	1,720

LIST of United States Fishing vessels which entered Canadian Ports on the Pacific Coast during the year ended December 31, 1923—*Concluded*

Name of Vessel	Tonnage	Number of men in crew	Number of times entered	Reasons for Entry	Quantity of fish landed
Virginian.....	33	5	1	"	cwt. 1,940
Volid.....	8	3	11	" bait and ice.....	120
Venus.....	4	3	1	"	1,320
Viking.....	11	4	1	"	720
Vesta.....	13	5	1	"	900
Venus.....	25	7	1	"	2,260
Volunteer.....	21	5	10	" bait, for orders, ice.....	160
Viscara.....	33	5	1	Repairs.....	
Velva.....	6	2	1	Bait, ice.....	
Velero.....	6	3	11	Bait and ice.....	
Volunteer.....	19	5	8	"	
Virginis.....	5	2	2	" land fish.....	6
Westfjord.....	17	5	6	Land fish, bait, ice.....	360
Woodrow.....	23	5	6	" ice and bait.....	450
Wabash.....	6	3	1	"	1,020
Wilson.....	19	5	5	" ice and bait.....	100
Wireless.....	19	6	5	"	900
Wave.....	7	3	1	"	580
Washington.....	13	4	1	"	760
White Star.....	17	4	2	"	420
Wyague.....	4	3	1	Ice and bait.....	
Wilhelmina.....	17	5	14	Supplies, bait and ice.....	
Xaporta.....	187	36	1	Land fish.....	400
Yakutat.....	41	13	6	" bait and ice.....	2,380
Yellowstone.....	22	5	1	"	1,180

